



THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND BLOOD PRESSURE STATUS IN HOUSEWIVES WITH HYPERTENSION IN THE WORK AREA OF SAMATA PUBLIC HEALTH CENTER

Nurul Khusnul Khotimah^{1*}, Nurhidaya¹, Erni Astri Yani¹

¹ Department of Nursing, Universitas Islam Negeri Alauddin Makassar, Gowa, Indonesia

*E-mail Address: nurul.khusnul@uin-alauddin.ac.id

Abstract

Hypertension is one of the diseases with health problems that occur throughout the world. Hypertension is also a medical condition with a high prevalence. Hypertension can cause complications such as coronary heart disease, left ventricle hypertrophy, and stroke which are the highest carriers of death. One of the efforts in preventing hypertension is by doing physical activity such as morning walking, gymnastics, jogging and swimming. Through sports activities, the heart can work more efficiently, the frequency of pulse is reduced, but the pumping power of the heart is stronger. This study aims to determine the relationship between physical activity and blood pressure status in housewives with hypertension in the working area of the Samata Health Center. This study uses quantitative research design analytical survey with cross sectional design approach, Location of Research Study in the Work Area Health Center Same District Gowa. Technique taking sample with method non probability sampling with method total sampling with total 33 people. The chi-square test results obtained p-value of 0.033 with a significance level of <0.005. The p-value (0.033) is smaller than 0.05 meaning that there is a relationship between physical activity and blood pressure status in housewives. There is a significant relationship between physical activity and blood pressure status among hypertensive housewives. Regular physical activity can help control blood pressure and prevent complications like heart disease and stroke.

Keywords: Blood Pressure Status, Hypertension, Physical Activity

Abstrak

Hipertensi merupakan salah satu penyakit dengan masalah kesehatan yang terjadi di seluruh dunia dan memiliki prevalensi yang tinggi. Hipertensi dapat menyebabkan berbagai komplikasi, seperti penyakit jantung koroner, hipertrofi ventrikel kiri, dan stroke, yang merupakan penyebab utama kematian. Salah satu upaya pencegahan hipertensi adalah melakukan aktivitas fisik, seperti berjalan pagi, senam, jogging, dan berenang. Melalui aktivitas olahraga, jantung dapat bekerja lebih efisien, frekuensi denyut nadi menurun, namun daya pompa jantung menjadi lebih kuat. Penelitian ini bertujuan untuk mengetahui hubungan antara aktivitas fisik dan status tekanan darah pada ibu rumah tangga penderita hipertensi di wilayah kerja Puskesmas Samata. Penelitian ini menggunakan desain penelitian kuantitatif dengan metode survei analitik dan pendekatan potong lintang (cross-sectional). Penelitian dilaksanakan di wilayah kerja Puskesmas Samata, Kabupaten Gowa. Teknik pengambilan sampel menggunakan non-probability sampling dengan metode total sampling, sehingga diperoleh sebanyak 33 responden. Hasil uji Chi-square menunjukkan nilai p sebesar 0,033 dengan tingkat signifikansi <0,05. Nilai p tersebut menunjukkan adanya hubungan antara aktivitas fisik dan status tekanan darah pada ibu rumah tangga penderita hipertensi. Kesimpulan: Terdapat hubungan yang signifikan antara aktivitas fisik dan status tekanan darah pada ibu rumah tangga dengan hipertensi. Aktivitas fisik yang dilakukan secara teratur dapat membantu mengontrol tekanan darah serta mencegah terjadinya komplikasi seperti penyakit jantung dan stroke.

Kata kunci: Status tekanan darah, hipertensi, aktivitas fisik

Introduction

Hypertension is problem health that occurs throughout the world. Hypertension is condition medical with prevalence high. Case global hypertension is estimated amounting to 22% of the world's total population. Approximately 2/3 of

sufferer hypertension originate from the economic country intermediate to below (Ministry of Health, 2019). In 2015 it was estimated that 1 in 4 men and 1 in 5 women suffer hypertension according to *World Health Organization* (WHO, 2019). In Indonesia, based on results Basic Health Research (2019) states that prevalence hypertension reached the figure is 34.11% in residents >18 years. Based on 2019 WHO data, it shows that moment This prevalence hypertension globally, 22 % of the world's total population. The African region has prevalence hypertension highest by 27% and the Americas region has prevalence hypertension lowest namely 18%, while Southeast Asia itself is in the 3rd highest position with prevalence by 25% of the total population. WHO also estimates that 1 in 5 women worldwide have hypertension. Number This bigger between group man that is 1 in 4 of them own hypertension (Susanti *et al.*,2022).

Prevalence hypertension in Indonesia in 2019 was 34.11%. The prevalence hypertension in the population of Indonesia aged 18-24 years by (13.22%), 25-34 years old (20.13%), 35-44 years old (31.61%), 45-54 years old (45.32%), 55-64 years old (55.22%), 65-74 years old (63.22%) and experienced increase in age >75 years (69.53%). Prevalence The highest hypertension in Indonesia is in South Kalimantan Province at (44.13%), while the lowest is in in the Province Papua (22.22%). Prevalence This will Keep going increase along increase age (Ministry of Health of the Republic of Indonesia, 2020). Based on data from the South Sulawesi Provincial Health Office in 2020, according to data from the Regency /City , the prevalence of hypertension highest there were 290,247 cases in Makassar City , then Bone Regency is the highest second as many as 158,516 cases , and the highest third Regency Goa as many as 157,221 cases, and the prevalence lowest in the Regency Barru as many as 1,500 cases (Health Office) South Sulawesi , 2020).

After done visit to the Health Center Same patient data obtained with disease hypertension for 3 years lastly, experienced improvement every year, namely in 2020 there were 703 patients, in 2021 there were 1,355 patients and in 2022 there were 1,752 patients. And the results interview from some housewives Visiting stairs to health center obtained information that they seldom do activity like sport or road Healthy every morning, often violate and not comply recommendations and prohibitions from doctor, for No consume table salt, and consume meat on special occasions and after consume food at risk can cause relapse hypertension. Research conducted by Muliwati, Syam, Sirajuddin in journal connection pattern consumption of sodium and potassium as well activity physique with incident hypertension at Dr. Wahidin Sudirohusodo General Hospital Macassar show that There is connection between activity physique with hypertension. Respondents as many as 64.4% have activity light suffer hypertension, while 35.6% of respondents were active currently No suffer hypertension (Mario *et al.*, 2018).

Another study conducted by Mutiarawati in his thesis entitled connection between history activity physique with incident hypertension at the age of 45-54 years study in the sub-district area Tlogosari West Semarang, found results that significant between activity physique with incident hypertension. So that should the more increase activity physique in everyday one of them with more Lots walk to protect condition health (Hasanudin *et al.* ,2018). Lack of activity physique increase risk suffer hypertension. People who do not active tend have frequency pulse a bigger heart tall so that muscle his heart must Work harder on every contraction increasingly big and frequent muscle heart pumping, then more and more big pressure exerted on the arteries so that pressure blood will increase (Rina MD *et al.* , 2017). Factor risk hypertension in workers Mother House ladder divided in two group that is factors that are not can changed like age, history family, and factors that can changed like habit smoking, less Eat fruits and vegetable, excessive salt consumption, excess body weight or obesity, lack of activity physical, use hormonal contraception, and stress (Feby *et al.*, 2021).

Activities physique usually done with movement that results in work on muscles frame for emit energy. Activity physique like walking, sweeping, wash clothing, and gardening that can done daily at home from activity currently until weight that can help guard health and can avoid from disease. Activity lack of physical can cause disease is one of them disease that is not infectious is hypertension (high blood pressure) blood height) (Hasanudin *et al.*, 2018). A person whose activities not enough can experience increase in heart rate heart and become burden on the heart so that pump harder and resulting increase in pressure blood (Ministry of Health of the Republic of Indonesia, 2015). Activity physical activity that is done in a way routine and regular can control the heart in the body. In general, an active person his physical in a way routine and regular own pressure low blood pressure compared to the rare ones do activity physique so pressure his blood the more high. This is Because someone who often do activity tend have function muscles, joints, larger organs strong and flexible. Activities lack of physical Can result increase risk hypertension so that can increase weight . Someone lacking in activity his physical tend own frequency pulse a bigger heart increase so that muscle heart work more strong and heart must pumping and more big pressure on the arteries . Activity lack of physical can cause pressure blood become increase and can happen complications. frequent complications happen including stroke, heart coronary , disorder function kidney (Hasanudin *et al.*, 2018).

Through activity sports, heart can Work in a way more efficient, frequency pulse pulse reduced, but strength pump heart the more strong (Xavier, 2017). Activity lack of physical can cause changes to the system cardiovascular with lower reflex neurovascular in the body that causes vasoconstriction vessels blood and Someone who is active do activity

physique in a way routine in general own pressure blood that tends to normal. Mom at home stairs that are not Work may be very risky For activity physique level low, because they must balancing interest work and life competing families, and sports often put aside the problem that seems to be more urgent (Meith Ayu *et al.*, 2020). Basic Health Research Data (Riskedas, 2018) shows that in Indonesia the activities lack of physical reached 33.5%. This means can concluded that level activity physique is still very low. WHO recommends activity physique based on age, namely : children and adolescents do activity physique moderate-strong minimum 60 minutes per day, adults 18-64 years and adult 65 years to on do activity physique minimum 150 minutes per week (Piramayana , 2020). Based on background behind said, researchers interested For researching “ Activity Overview Physical At Home Mom Ladder Sufferer Hypertension ”.

Method

This research uses a quantitative survey research design. Analytics with design approach *cross sectional* namely research to study the dynamics of correlation between relationships and effects by means of an observation approach or data collection at one time, meaning that each research subject is only observed once and measurements are made on the character status or subject variables at the time of examination (Notoatmodjo, 2018). Location and Time of Research Study This implemented in the Work Area Health Center Same District Gowa. Technique taking sample with method non probability sampling with *method total sampling* with total 33 people. Instruments used namely GPAQ (*Global Physical Activity Questionnaire*) version 2.

Instrument This adopted from WHO. In instrument the there is a number of question Which concerned with various activity physique. Bivariate analysis for knowing the related factors between 2 variables which is suspected correlated. Bivariate analysis in research This aiming For know connection activity physique with status pressure blood on Mother House ladder sufferer hypertension. Analysis bivariate in study This use test *Chi- square* which is a parameteristic test (normal data distribution) which used For look for connection between 2 variables.

Results

Table 1. Characteristics from Housewife The Stairs That Experience Hypertension

Characteristics	Frequency	Percentage %
Age		
Adulthood (36-45)	4	12.1
Elderly (46-47)	29	87.9
Long Time Experience hypertension		
1-5 Years	1	3
6-10 Years	4	12.1
>11 Years	28	84.8
Blood pressure		
Pre Hypertension	0	0
Hypertension level 1	3	9.1
Hypertension level 2	30	90.9
Total	33	100

Based on the data above, it shows that the most age is in the early elderly category as much as 87.9%. Based on the length of time housewives experience hypertension, the most are in the category >11 years as much as 84.8% and the highest degree of hypertension is in category 2 as much as 90.9%.

Table 2. Activity Level Overview Physical in Housewives Ladder patient Hypertension

Activity Level Physique	Frequency	Percentage %
Tall	0	0
Currently	4	12.1
Low	29	87.9
Total	33	100

Based on the table above descriptively shows that the level of activity The physical condition of housewives with hypertension was in the moderate category as many as 4 respondents (12.1%) and in the low category as many as 29 respondents (87.9%).

Table 3. Activity relationships Physical with Blood Pressure Status in Housewives

Activity Level Physique Blood pressure	Currently	Low	P value
Hypertension stage 1	3	0	0.003
Hypertension stage 2	1	29	
Total	4	29	

Chi-square test results The results obtained were $p\text{-volume} = 0.033$ with a significance level of <0.005 . $p\text{-volume}$ value (0.033) is smaller than the α value (0.05) so that H_a is accepted and H_o is rejected. So it can be concluded that in this study there is a significant relationship between activity Physical and blood pressure status of housewives with hypertension in the Health Center Work Area Same.

Discussions

The results Description of Physical Activity in Housewives in the Work Area of Samata Health Center

This study shows that the most physical activity is in the low category, which is 29 (87.9%). The categorization in this study is high, moderate and low physical activity. The results of the study conducted by Rista et al (2023) showed that almost all respondents suffered from light physical activity as many as 25 respondents (92.6%), and most of the respondents had heavy activity as many as 18 respondents. The activities carried out by respondents such as walking for at least 10 minutes per day and light activities such as sweeping. These results show that people with hypertension have light physical activity.

The results of a study conducted by Rimbawan (2023) showed that most subjects (54.2%) had physical activity that was included in the light category and the remaining 45.8% of subjects had heavy physical activity. People who are in the light physical activity category are people who do not do much physical activity, do not walk long distances, use vehicles as a means of transportation, and spend more time doing activities in a still or sitting position (sedentary), for example office workers or tailors (garment workers) so that not many calories are burned. The results of the study conducted by Miftahul Jannah (2021), namely the results of the bivariate analysis (table 2) showed that 26.32% of respondents with less active physical activity experienced hypertension, while respondents who had active physical activity were 22.86%. Another study conducted by Lestari et al. in 2020 showed that respondents did a lot of light physical activity, namely 19 respondents (79.2%), while respondents who did physical activity were included in the heavy physical activity category, namely 22 respondents (73.3%).

According to Virginia Henderson's theory, she introduced the definition of nursing. She stated that the definition of nursing must include the principle of physiological balance. According to her, the unique task of nurses is to help individuals, both sick and healthy, through their efforts to carry out various activities to support the health and healing of individuals or the process of dying peacefully. "Thus, the meaning of Virginia Henderson's theory is to explain that the task of nurses is to try to restore individual independence in fulfilling 14 components. The 14 components referred to by Virginia Henderson are: breathing normally, eating and drinking sufficiently, moving and maintaining the desired position, sleeping and resting, choosing appropriate clothing, maintaining temperature within normal limits by adjusting clothing and changing the environment, avoiding environmental hazards that can injure (Desmawati, 2018).

Some of the components in question include one of them stating that a person should move and eat and drink enough, it can be concluded that moving or doing physical activities such as morning walks, gymnastics and housework. because from the results of research conducted by Puspita in 2017 stated that morning walks and housework have an effect on blood pressure, doing regular exercise or household activities can lower blood pressure. As for eating and drinking in

moderation because one of the factor causing hypertension is from the food consumed such as salty and fatty foods. For people with hypertension, it is recommended to reduce salty and fatty foods, while foods that are good for people with hypertension to consume are fruits and vegetables. The researcher's assumption says that the level of physical activity in someone who suffers from hypertension has low physical activity, someone with low physical activity has 30-50% hypertension than those who are active in activities. A person's low physical activity can be influenced by several factors such as age and length of hypertension. In this study, the majority of respondents were in the early elderly category (46-55 years). Someone who has entered old age tends to do less physical activities such as jogging, cycling, morning walks and so on.

Blood Pressure Overview in Housewives in the Samata Health Center Work Area

The results of the study in this study showed that out of 33 respondents, 3 respondents (9.1%) were in the stage 1 hypertension category and 30 respondents (90.9) were in the stage 2 hypertension category. The highest score was in stage 2 hypertension. In this study, housewives in the 36-40 year category, namely late adulthood and the 46-55 year category, namely early elderly, were more dominant in having high blood pressure (hypertension). This is in line with research conducted by Tri (2022), which states that age is one of the factors that can affect blood pressure.

The results of a study conducted by Rapina et al (2023) showed that the category of blood pressure in menopausal women was experiencing hypertension with Blood Pressure ($\geq 140 / 90$ mmHg) of 27 respondents (67.5%) followed by those who did not experience hypertension of 13 respondents (32.5%). Blood pressure in women increases more sharply with age. After 55 years, women have a higher risk of suffering from hypertension. This is because the production of the hormone estrogen decreases during menopause. Women lose its beneficial effects so that blood pressure increases.

According to Lawrence Green's Theory (Notoatmodjo, 2014) states that human behavior is influenced by a basic factor, namely behavioral factors (behavior causes) and behavior (non-behavioral causes). He said that behavior itself is determined or formed from 3 factors, One of the 3 factors in question is the predisposition factor (prediposing factors) which includes knowledge and attitude.

So it can be concluded from Lawrence Grees' theory that someone who lacks knowledge about what prohibitions are not allowed for hypertension sufferers, such as eating foods that contain a lot of salt, eating foods such as junk food and having an attitude of not caring about their own illness, such as not exercising or being active in the morning or evening.

The Relationship between Physical Activity and Hypertension in Housewives with Hypertension

The chi-square test results obtained a p-volume of 0.033 with a significance level of <0.005 . The p-volume value (0.033) is smaller than the α value (0.05) meaning that there is a relationship between physical activity and blood pressure status in housewives. The categories of physical activity referred to in this study are high physical activity, such as carrying heavy objects, moderate physical activity such as working outside the home such as gardening and low activity such as sitting and standing. So it can be concluded that in this study there is a significant relationship between physical activity and blood pressure status in housewives with hypertension in the Samata Health Center Work area.

In the results using the chi-square test, it was obtained that housewives who did moderate physical activity as many as 3 respondents were in stage hypertension with a percentage (9.1%), were in stage 2 hypertension who did moderate physical activity as many as 1 respondent with a percentage (3.0%), and those in stage 2 hypertension with moderate physical activity as many as 29 respondents. Karim et al., (2018) stated that the lower a person's physical activity, the higher the risk of hypertension. This study is supported by research conducted by research conducted by Saur et al., (2022) showing that there is a relationship between physical activity and blood pressure. The results of the Spearman rank statistical test obtained a significant number (0.002) lower than 0.05 or ($p < \alpha$), so the H_0 data is rejected which means there is a relationship between physical activity and blood pressure in housewives.

In the study (Srinani jelmia et al, 2023) there was no significant relationship between physical activity and hypertension (p value = 0.076). Hypertension is not only caused by lack of physical activity but can also be caused by age, gender, and stress factors. This study is supported by research conducted by research conducted by Saur et al., (2022) showing that there is a relationship between physical activity and blood pressure. The results of the Spearman rank statistical test obtained a significant number (0.002) lower than 0.05 or ($p < \alpha$), so the H_0 data is rejected which means there is a relationship between physical activity and blood pressure in housewives. The results of the study conducted by Ahmad Aswal et al., (2021) namely the results of the statistical test obtained a PR value of 1.15 (95% CI: 1.09- 1.21). This shows that there is a significant relationship between physical activity and hypertension, namely respondents who have less active physical activity are 1.15 times more at risk of experiencing hypertension than respondents who have active physical activity. The results of the study conducted by Ahmad Aswal are in line with the study conducted by Hasanuddin et al., (2018) obtained a Sig. value = 0.005 ($\alpha \leq 0.05$) meaning that H_0 is rejected and H_1 is accepted, namely there is a relationship between physical activity and blood pressure in people with hypertension in the Tlogosuryo RT/RW 01/02 area, Tlogomas Village, Lowokwaru District, Malang City.

The results of the analysis also found a negative correlation value as evidenced by the correlation coefficient value of - 0.808, which means that lack of physical activity can be at risk of high blood pressure. The Prophet Shallallahu'alaihi wa sallam said, "Two blessings, most people are deceived by both, namely health and free time." (HR. Al Bukhari no. 6412, from Ibn Abbas). Ibn Baththol said, "A person is not said to have free time until his body is also healthy. Whoever has these two blessings (namely free time and the blessing of health), let him be enthusiastic, do not let him be deceived by leaving gratitude to Allah for the blessings given. Being grateful is by carrying out every command and avoiding every prohibition of Allah. Whoever misses this kind of gratitude, then he is the one who is deceived. "From the verse above, it can be concluded that time is the most meaningful thing, whether it is to do good for oneself or for others, if it is for good, it will have a good impact and if it is for bad, it will have a bad impact in the future. We must be grateful for the time that Allah SWT has given us.

Regular physical activity helps improve overall heart efficiency. Those who are physically active generally have lower blood pressure and are less likely to suffer from high blood pressure. Those who are physically active tend to have better muscle and joint function, because such organs are stronger and more flexible. Activities in the form of aerobic movement or exercise are useful for improving and maintaining fitness, cardio-respiratory endurance. Examples of aerobic exercises are walking, jogging, swimming, cycling. Aerobic exercise makes the body's muscles work (Hasanuddin et al., 2018). WHO recommends doing moderate-intensity physical activity for 30 minutes/day in 1 week or 20 minutes/day for 5 days in one week with high intensity to get optimal results from physical activity or exercise. According to the researcher's assumption from the description above, namely that the lack of physical activity in housewives causes the body's organs and blood and oxygen supply to become blocked, thereby increasing blood pressure. By doing sports or doing physical activity regularly, it can lower or stabilize blood pressure.

Conclusion

Characteristics based on age are mostly in the early elderly category as much as 87.9%. Based on the length of time housewives experience hypertension, the most are in the category >11 years as much as 84.8% and the highest degree of hypertension is in category 2 as much as 90.9%. Description of activity levels The physical condition of housewives with hypertension is mostly in the low category, as many as 29 respondents (87.9%). From the research results, there is a relationship between activity physical examination with blood pressure status in housewives with hypertension in the Health Center Work Area Same.

Conflicting Interest

All authors declare no conflict of interest.

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