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Correlation of Self-Management Behavior with Blood Pressure in Productive Age Hypertension Patients Cross-Sectional Study at UPT Puskesmas Mentikan Mojokerto City

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ABSTRACT

Hypertension is known as the "silent killer." Patients are expected to actively engage in self-management behavior to reduce symptoms and the risk of complications. This study aimed to determine the relationship between self-management behavior and blood pressure in productive-aged hypertension patients. The method used was a correlational analytic approach with a cross-sectional design, involving 94 respondents out of a total of 102 through purposive sampling. The instruments used were the hypertension self-management behavior questionnaire and a sphygmomanometer. The results showed that 21 respondents (100%) with good behavior had normal blood pressure, 31 respondents (55.4%) with moderate behavior experienced stage 1 hypertension, and 15 respondents (88.2%) with poor behavior were in stage 2 hypertension. Analysis using Spearman's rank showed a p-value of 0.000<0.05 and an r-value of −0.827. In conclusion, there is a negative relationship between self-management behavior and blood pressure: the better the behavior, the lower the blood pressure.

Keywords: *Blood Pressure, Hypertension, Productive Age, Self-management behavior*

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INTRODUCTION

Hypertension is a public health problem in Indonesia that can affect all ages, including productive age (Taamu, Dali 2024). Productive age is the age range when a person faces many busy activities such as work and other activities, which increases the risk of hypertension (Rahmi et al. 2024). The prevalence of hypertension in the productive age group tends to increase due to high levels of activity and unhealthy lifestyles (Erma Kasumayanti, et al., 2021). Poor self-management behavior can worsen the condition of hypertension in productive age (Eriyani, and Maulana 2022). Low healthy living behaviors, such as lack of physical activity, low consumption of fruits and vegetables, smoking habits, and a diet high in salt and fat, can increase the risk of hypertension (Riska Agustina 2019).

WHO estimates the prevalence of hypertension in the global population is 22% worldwide. Southeast Asia has the third highest prevalence of hypertension, at 25% of the total population (Kementrian Kesehatan RI 2020). According to the basic health study (Tim

Riskesdas 2018), Indonesia has a hypertension prevalence of 34.1%. However, in 2023, the prevalence will reach 30.8% (Kementerian Kesehatan Republik Indonesia 2024). From these results, 73.8% of people suffering from hypertension received health services (Dinkes Jatim Prov 2023) Based on the 2023 SKI results, in the productive age group, out of 5.9% diagnosed with hypertension, only 2.5% regularly consumed medication and only 2.3% revisited health facilities (Kemenkes RI 2024). Data from the Mojokerto City Health Office shows 8,248 patients suffering from productive age hypertension who are residents of Mojokerto City. According to information from the Mojokerto City Health Office in the ASIK report for productive age hypertension patients at Mentikan Puskesmas, there were 1,383 people or 74.7% (SPM UPT Puskesmas Mentikan 2024).

The results of a preliminary study conducted on November 9, 2024, in the general polyclinic room of UPT Puskesmas Mentikan Mojokerto City, found 3 productive age hypertension patients undergoing health examinations. Data showed that the first patient's blood pressure was 120/80 mmHg. The first patient filled out the Hypertension Self Management Behavior Questionnaire (HSMBQ) and the self-management behavior measurement result was sufficient. This patient regularly exercises every morning by walking when buying vegetables for cooking, and also follows a low-salt diet as advised by health workers.

The second patient had a blood pressure of 180/100 mmHg this month. This second patient filled out the Hypertension Self Management Behavior Questionnaire (HSMBQ) and the self-management behavior measurement result was low. This patient experienced a lack of family support, never followed a diet, and never took medication at all. The third patient had a blood pressure of 160/100 mmHg this month. The third patient filled out the Hypertension Self Management Behavior Questionnaire (HSMBQ) and the result was low.

Normal blood pressure in hypertension patients can indicate that the patient has been able to perform self-management behavior well. Systolic and diastolic blood pressure of hypertension patients shows that the higher the hypertension classification level, the worse the self-management behavior. Supported by Susanti's research, the analysis results indicate that a lack of self-management behavior can influence an increase in a person's blood pressure. The highest self-management behavior in the poor category meant that the most common blood pressure value was hypertension stage 2. Self-management behavior through self-care aims to change to a healthy lifestyle such as blood pressure monitoring, weight management, healthy eating, reducing tobacco and alcohol consumption, and regular medication intake to help clients minimize complications from hypertension (Dineen-griffin et al. 2019).

Based on the existing phenomena, it is necessary to control the blood pressure of productive age hypertension patients using self-management behavior with the aim of increasing patient understanding and skills in self-care, such as appropriate hypertension diet, what activities are good for hypertension patients, monitoring and managing their own health conditions, what medications can be taken by hypertension patients, and independent blood pressure monitoring by patients. This research can not only control the

blood pressure of productive age hypertension patients but also prevent complications in productive age hypertension patients.

METHOD

The entire research series was conducted based on quantitative research methods with a cross-sectional approach. This method aims to identify the relationship between independent and dependent variables. The sampling method used in this study to obtain a significant sample size was purposive sampling. The sample in this study consisted of 94 productive age hypertension patients visiting the General Polyclinic Room of UPT Puskesmas Mentikan Mojokerto City. Data collection in this study used the Hypertension Self Management Behavior Questionnaire (HSMBQ) to measure patients' self-management behavior and a sphygmomanometer to measure patients' blood pressure. After the data was collected, data processing was carried out including editing, coding, scoring, tabulating, and data analysis with the help of SPSS.

FINDING AND DISCUSSION

FINDING

Table 1: Overview of self-management behavior levels of respondents in the general polyclinic of UPT Puskesmas Mentikan Mojokerto City from February 10 - March 01, 2025

Self Management Behavior	Blood Preasure								Total	
	Normal		*High* Normal		Hipertensi *Stage* 1		Hipertensi *Stage* 2			
	f	%	f	%	f	%	f	%	f	%
Good	21	100.0	-	-	-	-	-	-	21	100.0
Sufficient	5	8.9	20	35.7	31	55.4	-	-	56	100.0
Insufficient	2	11.8	-	-	-	-	15	88,2	17	100.0
Total	28	29.8	20	21.3	31	33.0	15	16.0	94	100.0
r : -0,827** p-value : 0,000 a : <0,05										

Source: primary data collected in the year 2025

Based on the results from Table 1, it was found that out of 94 respondents (100%) studied, all respondents with good self-management behavior had normal blood pressure, with a frequency distribution of 21 respondents (100.0%). The majority of respondents with sufficient self-management behavior had hypertension Stage 1 blood pressure, with a frequency distribution of 31 respondents (55.4%). Nearly all respondents with poor self-management behavior had hypertension Stage 2 blood pressure, with a frequency distribution of 15 respondents (88.2%).

Based on the Spearman rank correlation test, a significance value or Sig. (2-tailed) p-value of 0.000 ($p < 0.05$) was obtained. Since the significance value of 0.000 is less than 0.05, it means that H0 is rejected and H1 is accepted. This implies that there is a significant relationship between the Self-Management Behavior variable and blood pressure in

productive-aged hypertension patients. The coefficient value obtained from this hypothesis test is -0.827, which indicates that the strength of the correlation between the Self-Management Behavior variable and blood pressure in productive-aged hypertension patients is very strong. Furthermore, the direction of the relationship between self-management behavior and blood pressure is negative. This means that the relationship between the self-management behavior variable and blood pressure in productive-aged hypertension patients is inversely proportional. In other words, the better the self-management behavior, the lower the blood pressure of productive-aged hypertension patients, and vice versa.

DISCUSSION

The results of this study found that the majority of respondents were female, consistent with the existing theory that women tend to have better self-management behavior than men due to better adherence. This study's results show that sufficient self-management behavior was observed in 46 female respondents (82.1%). Other studies indicate that women tend to show better self-management behavior than men, due to their tendency to adhere to healthcare provider visits and be more compliant with medication (Tursina, et al., 2022). This can influence the success of self-management behavior (Dena SCHULMAN-GREEN, Phd; Sarah S.JASER, PhD; Chorong PARK, MSN 2017). According to the researcher's opinion, the majority of respondents being female is consistent with the existing theory that women tend to have good self-management behavior compared to men because adherence in female respondents is better than in male respondents. Research by De Brito-Ashurst I, et.al., 2011, states that maturity of care in a disease is also based on individual experience and the surrounding environment. This study's results show that respondents with sufficient self-management behavior had almost entirely suffered from hypertension for >5 years, with a crosstab result of 50 respondents (89.3%). This indicates that the longer a person suffers from a disease, the better their self-management behavior. According to the researcher's opinion, patients who have suffered from hypertension for more than 5 years will have a better understanding of how to care for themselves and the self-management behavior that must be done. According to Sinuraya et al. 2020 who support patients are important components that influence patients' self-management behavior. However, this support must be accompanied by a good understanding of hypertension and how to manage it to be more effective. The research results show that respondents with family support had sufficient self-management behavior, with a crosstab of 45 respondents (61.6%). Hypertension sufferers who receive family support are likely to have good behavior in maintaining their health compared to hypertension sufferers who receive less support from their families (Sari et al. 2023). According to the researcher's opinion, the role of the family is very important for self-management behavior. Low family support will also lead to low self-management behavior.

Exercise is a factor that affects blood pressure. Infrequent exercise will result in a higher heart rate and susceptibility to obesity. According to the study results, almost half of the respondents with hypertension stage 1 blood pressure exercised, with a crosstab of 26

respondents (43.3%). According to Narkiewicz in 2009, physical activity has a strong relationship with the incidence of hypertension, and individuals who are less active have a 30-50% risk of suffering from hypertension. The duration, intensity, and frequency of physical activity will affect the health benefits of physical activity (Carnethon Mancia, G., Fagard R.,Narkiewicz, K. 2009). According to the researcher's opinion, exercise is good for controlling blood pressure within normal limits, and regular exercise will help the medication work more effectively. The results of the study show that most respondents do not exercise; it is advisable for respondents to start exercising with light intensity.

A factor influencing blood pressure in the hypertension stage 1 category is medication. Medication for high blood pressure, or hypertension, consists of various types of drugs designed to lower and control blood pressure such as diuretics (Furosemide, Hydrochlorothiazide), ACE Inhibitors (Captopril, Ramipril), Angiotensin II Receptor Blockers (Candesartan, Valsartan), Beta Blockers (Bisoprolol, Propranolol), etc.. The study results show that 29 (38.7%) respondents at UPT Puskesmas Mentikan Mojokerto City regularly take medication and have hypertension stage 1 blood pressure. Adherence to antihypertensive medication has a close relationship with blood pressure (K. Anwar and R. Masnina 2019). Antihypertensive drugs have two main mechanisms in regulating blood pressure: inhibition of the renin-angiotensin-aldosterone system (RAAS) and inhibition of calcium influx into muscles (D. Holidah 2011). Respondents in this study took amlodipine every night before bed and had their blood pressure checked at the Puskesmas in the morning; this can normalize blood pressure or lead to a decrease in blood pressure. The more optimal blood pressure reduction with evening administration is thought to be related to the circadian rhythm of blood pressure, which naturally decreases during sleep and increases in the morning. Amlodipine, as a long-acting drug, can maximize blood pressure control when taken at night, so blood pressure during morning examinations is lower (Wang, Vogel, and Pharmd 2023). According to the researcher's opinion, adherence to antihypertensive medication is a vital element in hypertension management. By increasing knowledge, providing social support, and managing side effects, it is hoped that patient adherence levels can increase, so that blood pressure can be well controlled.

In addition, there are other factors that influence blood pressure, such as family history of disease. According to the study results, the majority of respondents who had hypertension stage 1 blood pressure had a family history of hypertension, totaling 22 respondents (36.1%). Hereditary factors cause hypertension because parents who have high blood pressure will have a greater risk of passing on hypertension to their children (Natekar et al. 2014). Hereditary factors always play an important role in the onset of a disease carried by family genes. This is consistent with the theory put forward by (Gunawan and Ash shofar 2018), that statistical data proves a person will have a greater chance of getting hypertension if their parents are hypertension sufferers. According to the researcher's opinion, the existing respondents show consistency with the theory. A family history of hypertension plays an important role in the blood pressure of respondents; the majority of respondents who have a family history of hypertension also experience hypertension in the stage 1 category.

The results of the Spearman Rank Correlation Coefficient statistical test showed a significance or Sig.2 tailed p-value of 0.000 and (p<0.05). The correlation coefficient obtained in this hypothesis test was -0.827**, which means that the strength of the relationship (correlation) between Self Management Behavior and blood pressure in productive age hypertension patients is very strong. This study is in line with research conducted by Prakoso 2022 which states that there is a relationship between self-management and blood pressure with the research title "The relationship between self-management and blood pressure status in hypertension patients at UPT Puskesmas Pajang Surakarta".

The higher the self-management behavior performed by a person, the lower the blood pressure in hypertension patients; conversely, the lower the self-management behavior performed by a person, the higher the blood pressure in hypertension clients (Lestari 2020). Self-management behavior in the sufficient and poor categories is caused by a lack of ability and care in paying attention to health. In this case, respondents should be able to achieve a better percentage of self-management behavior (Fransiska Shella Sonia, Paulus Subiyanto 2023).

The study results also show inconsistencies between the research results and theory. There were 5 (8.9%) respondents who had normal blood pressure but sufficient self-management behavior. Among these respondents, the majority (4 patients) had suffered for ≤ 5 years. Respondents who had suffered for ≤ 5 years had less knowledge about self-management behavior but normal blood pressure. Respondents with new hypertension are often more motivated and disciplined in undergoing treatment and lifestyle changes because awareness of disease risk is still high, so their self-management behavior is sufficient even though their blood pressure category is normal.

The study results show that the majority of respondents who exercised (3 respondents) had sufficient self-management behavior while having normal blood pressure. Although the majority of hypertension sufferers exercise, the frequency and duration of their exercise vary. Some studies show that there is not always a significant relationship between exercise frequency and blood pressure in hypertension sufferers, possibly because other factors such as medication, stress, and individual health conditions also play a role. A minority of respondents who did not exercise (2 respondents) had sufficient self-management behavior while having normal blood pressure. Respondents who do not exercise but have normal blood pressure can rely on a supportive environment for blood pressure control and also regular medication intake. They also had sufficient self-management behavior in aspects other than exercise. According to the researcher's opinion, respondents who had sufficient self-management behavior and normal blood pressure were caused by several factors such as sufficient respondent knowledge, and the majority of these 5 respondents regularly exercised.

The study results show 2 respondents (11.8%) with normal blood pressure but poor self-management behavior. These respondents underwent other effective treatments or therapies to control blood pressure. Antihypertensive medication can help stabilize blood pressure even if the diet is not strictly followed. Patients still adhere to other aspects of self-

management behavior, such as reducing saturated fat foods, reducing salt use when cooking, controlling conditions that may increase blood pressure, controlling emotions by listening to music, resting, and many other activities. This can help keep blood pressure normal. Although self-management behavior is lacking, blood pressure can remain normal because of routine and appropriate antihypertensive medication. These drugs help control blood pressure so that the risk of complications can be prevented, even if the patient has not fully managed their lifestyle optimally. The administration of amlodipine therapy at night showed a greater reduction in systolic and diastolic blood pressure compared to morning administration; after routine use for 10 days in the morning, it will show a decrease in blood pressure in these respondents. This is in line with research conducted by Fares et al. 2016 which states that amlodipine therapy administered at night reduces blood pressure more. Literature according to JNC VIII states that the maximum dose of amlodipine is 2.5-10 mg/day (Wulandari et al. 2020). Amlodipine is consumed after dinner at night. The use of amlodipine at night has an effective effect on reducing blood pressure. Amlodipine only needs to be given once a day because it has a long duration of action (Khusna, 2021). This study is similar to research from Lemmer (2012) which states that there is no significant difference between the use of amlodipine for 24 hours. This can be caused by several factors, among others, patient characteristics (comorbidities and pharmacogenomics such as age, gender, and race) used in the study are different. These factors will affect the drug's action in the body so that it will give different results (Andrew J. Schoenfeld, et al., 2023).

According to the researcher's opinion, a lack of exposure to information about self-management behavior makes this insufficient, and routine medication by respondents makes blood pressure normal; in addition, there are several things in self-management behavior carried out by respondents such as indicators of adherence to recommended rules. According to the researcher's opinion, the results of this study show that self-management behavior plays an important role in the blood pressure criteria of productive age hypertension patients. Good self-management behavior will result in normal blood pressure, and conversely, poor self-management behavior will result in hypertension stage 2 blood pressure in productive age hypertension patients. In addition, there are also several factors that influence self-management behavior with blood pressure, leading to respondents with normal blood pressure having good, sufficient, and also poor self-management behavior. Meanwhile, according to existing theory and research, respondents with normal blood pressure should have good self-management behavior. Good self-management behavior can be proven by a person being able to apply a healthy lifestyle to keep blood pressure more controlled and maintained within the normal range, such as adhering to recommended diets/foods, namely reducing salt and fatty food consumption and consuming plenty of vegetables and fruits, engaging in physical activity such as exercise, being able to control weight, regularly monitoring blood pressure, and adhering to hypertension medication.

CONCLUSION

Based on the research results at UPT Puskesmas Mentikan Mojokerto City, the study conducted on 94 productive age hypertension respondents yielded results from the Spearman rank correlation coefficient test with a p-value = 0.000, and a correlation coefficient (r) = -0.827, which means that H0 is rejected and H1 is accepted, meaning there is a very strong negative correlation between self-management behavior and blood pressure in productive age hypertension patients. This means that the better the self-management behavior, the more normal the blood pressure of productive age hypertension patients; conversely, the poorer the self-management behavior, the blood pressure of productive age hypertension patients will be hypertension stage 2.

It is hoped that all productive-aged hypertension respondents at UPT Puskesmas Mentikan in Mojokerto City can improve their self-management behavior. For instance, regarding self-integrity, all respondents should enhance their hypertension diet and engage in regular exercise to achieve better blood pressure readings. When it comes to self-regulation, respondents need to be informed about hypotension, as many are unaware of this condition. Furthermore, respondents should increase their interaction with healthcare professionals and monitor their blood pressure more frequently at the community health center, without waiting for hypertension symptoms to appear. Adhering to scheduled check-ups and improving medication adherence are also crucial for respondents.

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