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Personal factors related to self-care management among people with hypertension at primary health care: A cross-sectional study

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Abstract

Background: Hypertension requires long-term treatment and can last a lifetime. Recommendations for hypertensive patients, where it is necessary to change behavior related to self-care, consist of increasing a healthy diet, limiting sodium intake, increasing physical activity, reducing smoking, and reducing alcohol consumption.

Purpose: The purpose of this study was to identify the self-care model of patients with hypertension in primary healthcare in Kota Malang.

Methods: This study's design was descriptive analytic with a cross-sectional methodology. Using G Power, 321 hypertension patients were used as samples. Purposive sampling was used in this study. The instruments used H-SCALE, also known as the Hypertension Self-Care Activity Level Effects. Pearson Chi-squared test was used to examine correlations among variables.

Results: Factors of gender ($p=0.001$) and education ($p=0.020$) are related to self-care in hypertensive patients. Majority of respondents were women, 223 people (69.5%), Most of the respondents had elementary school education, 136 people (41.4%), the majority of the 321 respondents (216, 67.3%) have moderate self-care category. Gender and age were significant factors associated with self-care among hypertensive patients ($p<0.05$).

Conclusion: Gender and education level have significant correlation with self-care management of hypertension. Providing self-management intervention by considering gender and education level needs improvement. Other factors need to be explored in further research.

Keywords: blood pressure, primary healthcare, self-care

Introduction

Hypertension is a degenerative disease that can become a problem and significantly make medical conditions serious, which can increase the risks of rupture of a blood vessel in the brain, heart disease, kidney disease and other diseases (Wahyuni et al., 2021). Hypertension is included in the silent killer disease group or silent disease because patients are not aware of the symptoms of high blood pressure and have not had their blood pressure checked (Uchmanowicz et al., 2018). Hypertension is divided into two types, namely essential or primary, whose origin is unknown, and secondary caused by endocrine diseases and heart disease (Tarigan et al., 2018).

Hypertension requires long-term treatment and can last a lifetime (Xiang et al., 2020). The success of treatment lies not only in the persistence of control, but also in the persistence of taking antihypertensive drugs to avoid

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complications (Jung & Lee, 2017). Hypertensive patients must adhere to their medication because hypertension is a chronic disease that cannot be cured, control of blood pressure is key (Wulandari & Puspita, 2019). Angioedema, coronary artery disease, acute and chronic renal failure, arterial disorders, cerebrovascular accident, congestive heart failure, myocardial infarction, and cardiovascular disease are complications that will occur if hypertension pressure treatment is not applied systematically (Zhang et al., 2020).

The incidence of hypertension has an impact on increasing morbidity and mortality in the community. Hypertension needs special attention considering the impact it has both in the short and long term (Haldi et al., 2020). Anti-hypertensive drugs require high adherence to support the process of treating anti-hypertensive disease. Inappropriate use of anti-hypertensive drugs can cause a spectrum of toxicity, failure of medical therapy, high medical costs, complications up to patient death, and hinder the quality of the health service itself (Mila et al., 2021).

The World Health Organization (WHO, 2023) estimates that the global prevalence of hypertension currently accounts for 1.28 billion adults aged 30–79 years. It is estimated that 46% of adult patients with hypertension are not aware they have the illness. The prevalence of hypertension in Indonesia based on Health Research and Development of RI, 2018 reached 34.1%. This percentage shows an increase from the Ministry of Health RI, 2013 figures where the prevalence of blood pressure/hypertension was 25.8%. As for cases of hypertension in Indonesia, it is estimated that only a third of cases are diagnosed, the rest are undiagnosed (Ministry of Health RI, 2021).

East Java has a population of 935,736 residents, the percentage affected by hypertension being 13.47% with men at 13.78% and women 13.25%, within an age range of 25–44 years (29%), 45–64 years (51%), and over 65 years (65%) (Attygalle et al., 2020). Meanwhile, the results of a survey by the Department of Communication and Information (2020) in Malang City showed hypertension is the second highest disease with a total of 32,109. However, 2021 data from the Ciptomulyo Health Center show the highest number of patients with hypertension is in the Bakalan Krajan sub-district, Malang City, being around 400 people.

From these results, it is stated that the level of success in managing hypertension patients in Indonesia still requires attention and requires serious efforts from all parties. One effort to reduce hypertension complications is self-care or self-management (Salami, 2021). Self-care is defined an activity to reduce anxiety levels to stress, increase and control the level of mental well-being that starts with self-awareness about what is happening to the patient, which will make a person able to prevent and control and overcome various problems that can affect physical, mental, and spiritual health conditions. In self-care, hypertensive patients have

a domain consisting of a low-sodium diet, a healthy and nutritious food diet, physically involved in active activities, smoking management, and reducing alcohol consumption, reducing stress levels, weight management, and reducing exposure to pollution and cold air (Unger et al., 2020). Meanwhile, Warren-Findlow et al. (2013) reported that self-care consists of medication adherence, weight management, physical activity, exposure to smoking, alcohol care, low salt, and low fat.

According to Peltzer and Pengpid (2018), in Indonesia the prevalence of hypertension based on the Indonesian Family Life Survey (IFLS 5) is still high (33.4%) and the level of awareness of the disease is low (42.9%). Whereas in hypertensive patients, according to Niriayo et al. (2019), the prevalence of adherence to self-care behavior revealed that the majority of research respondents were non-smokers (89.9%) and abstinent from alcohol (68.8%). Less than half of participants adhered to prescribed antihypertensive medications (48.2%) and recommended levels of physical activity (44.9%).

In the context of self-care, the American Heart Association has recommendations for hypertensive patients, where it is necessary to change behavior related to self-care and which consists of increasing a healthy diet, limiting sodium intake, increasing physical activity, reducing smoking and alcohol consumption, lowering blood sugar levels, anxiety and stress, reducing exposure to pollution, and exposure to cold air. Self-care is an individual's ability to take the initiative to shape behavior in maintaining health and well-being in life. If self-care can be formed properly, it will help shape the character of integrity, structure and function as well as human development toward a better life (Muhlisin & Irdawati, 2010). This study aimed to examine self-care management among people with hypertension at primary healthcare in Malang, Indonesia.

Materials and Methods

Design and participants

This study used a cross-sectional study approach. The population in this study were hypertensive patients in primary healthcare in Malang, Indonesia including Ciptomulyo Health Center, Dinoyo Health Center, and Pandanwangi Health Center. Respondents are members of the Prolanis group (Chronic Disease Management Program).

Samples

The sampling technique used was purposive sampling, with inclusion criteria: a. Patients diagnosed with hypertension aged ≥ 18 years old; b. Patients who are able to communicate well. Exclusion criterion was patient is not in a state of complications. After calculating using G Power with an effect size of 0.2, a power of 0.8, a probability of 0.5, a sample size of 321 respondents was obtained.

Table 1. Respondent Demographic Data (n= 321)

Variable	Frequency	Percentage
Gender		
Male	98	30.5
Female	223	69.5
Age (y.o)		
Early adulthood (26 – 35)	53	16.5
Adulthood (36 – 44)	110	34.3
Middle age (45-59)	142	44.2
Older people (> 60)	16	5.0
Education level		
No education	53	16.5
Elementary school	136	41.4
Junior high school	61	19.0
Senior high school	57	17.8
Diploma	3	0.9
University	11	3.4
Occupation		
Occupation	113	35.2
No Occupation	208	64.8
Routine control		
No	48	15.0
Yes	273	85.0
Long diagnosed		
<1 years	28	8.7
1 years or more	293	91.3
Medication		
No	196	61.1
Yes	125	38.9

Instruments

The Hypertension Self-Care Activity Level Effects, or H-SCALE, was used in this study. The goal of the questionnaire was to gauge how well hypertension patients were following the suggested self-care regimen. The H-SCALE has six domains and 29 components (Warren-Findlow et al., 2013). The Cronbach’s alpha coefficient of 0.73 was used in the pilot study to examine the reliability of each item on the questionnaire (Warren-Findlow et al., 2013). The overall results were between 10 and 183. This questionnaire used Indonesian language adapted from Huda et al. (2015). The Cronbach’s alpha coefficient of H-SCALE questionnaire was 0.73 (Huda et al., 2015).

There were six domains of hypertension self-care activity level effect (H-SCALE), as follows: (a) Medicine adherence: three items measure the number of days in the previous week (0–7) on which a person took their blood pressure medication, did so at the indicated dosage, and did so at the same time each day.; (b) The DASH diet is compared to

employing 11 items that relate to eating a healthy, low-fat, and low-salt diet. Items ask about consuming the appropriate amount of fruits and vegetables and avoiding foods with high salt content. They also ask about avoiding fatty or fried foods. The questionnaire featured both good and negative items (4, 5, 6, 7, 8, 9, and 10). (11, 12, 13, and 14). Negative items received scores of 7 to 0, while positive items received scores of 0 to 7; (c) Two questions were used to assess physical activity; (d) Two questions were used to measure smoking exposure. The responses were tallied (range 0–14); (e) Practice of weight management activities is assessed with 10 items related to dietary practices such as cutting portion size and making food substitutions as well as exercising specifically to lose weight; (f) Alcohol intake is assessed using the 1-item, National Institute on Alcohol Abuse and Alcoholism (NIAAA) Quantity and Frequency Questionnaire.

Data Analysis

The demographics data were reported using

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Table 2. Variable in Self-care in hypertensive patients (n=321)

Variable	Category	Frequency	%
Self-care among Hypertension patient	Poor	55	15.6
	Moderate	216	67.3
	Good	50	15.6
Medication	Poor	0	0
	Moderate	254	79.1
	Good	67	20.9
Diet	Poor	56	17.4
	Moderate	224	69.8
	Good	41	12.8
Physical activity	Poor	64	19.9
	Moderate	198	61.7
	Good	59	18.4
Smoking	Yes	119	37.1
	No	202	62.9
Weight management	Poor	61	15.0
	Moderate	212	66.0
	Good	48	15.0
Alcohol consumption	Yes	0	0.0
	No	321	100

descriptive statistics. This study used Pearson chi square in analyzing the relationship of factors that influence hypertension self-care. Ethical approval was obtained from the Ethical Review Board (ERB) Committee of Faculty of medicine, University of Muhammadiyah Malang (No.E.5.a/155/KEPK-UMM/X/2022).

Results

Demographic Data

Out of the 321 participants, 223 (69.5%), were women; 44.2% were of age in the late adult category. Most of the respondents (41.4%) had elementary school education. The majority (64.8%) were not employed. Most (85%) of them did go for their routine checks (Table 1).

Self-Care in Hypertension Patients

Based on Table 2, it can be explained that the majority of the 321 respondents (216 people, 67.3%) have moderate self-care category with. The majority of the 321 respondents (254 people, 79.1%) were in the category of moderate drug use. The majority of the 321 respondents (224 people, 69.8%) had a moderate diet category of. The majority of the 321 respondents (198 people, 61.7%) had moderate physical activity category of. The majority of the 321 respondents (202 people, 62.9%) were in the non-smoking category. The majority of the 321 respondents (212, 66%) had sufficient weight management category. All respondents did not consume alcohol.

Self-Care among Hypertension Patients

Table 3 shows that the average respondent does not take medication. Respondents have a week to eat more than one portion of vegetables 4 times and 48% do not eat fatty foods. 48.6% of respondents did not engage in any sports activities. Nearly half of the respondents are unsure about weight management. All respondents did not drink alcohol.

Relationship between demographic variables and self-care among hypertensive patients

Table 4 shows the factors of gender (p=0.001) and education (p=0.020) which are related to self-care in hypertensive patients.

Discussion

The aim of the study was to identify the self-care model of patients with hypertension in primary healthcare in Kota Malang. This study showed that most respondents were in sufficient total self-care. This is supported by the motivation of the sample to carry out routine blood checks once a month at the posyandu or puskesmas. In addition, it is supported by the gender that most women's motivation is better than men in the process of self-care. The results of this study are reinforced by literature (Setyorini, 2018) that the motivation and beliefs possessed by individuals indicate readiness to change behavior in a direction that can be better in the process of self-care. Meanwhile, in terms of gender, it is consistent with literature (Djamaluddin et al., 2022) that women are more responsible for maintaining their own

Table 3. Self-Care among Hypertension Patients

Item	Measurement							Mean	SD	
	Number of Days									
	0	1	2	3	4	5	6			7
Take your blood pressure pills?	205 (63.9)	20 (6.2)	9 (2.8)	8 (2.5)	3 (0.9)	3 (0.9)	4 (1.2)	69 (21.5)	1.85	2.88
Take your blood pressure pills at the same time every day?	205 (63.9)	40 (12.5)	14 (4.4)	5 (1.6)	0	0	2 (0.6)	55 (17.1)	1.49	2.61
Take the recommended number of blood pressure pills?	203 (63.2)	34 (10.6)	14 (4.4)	4 (1.2)	2 (0.6)	1 (0.3)	2 (0.6)	61 (19)	1.63	2.72
Diet	0	1	2	3	4	5	6	7		
Eat nuts or peanut butter?	146 (45.5)	90 (28)	31 (9.7)	25 (7.8)	9 (2.8)	5 (1.6)	7 (2.2)	8 (2.5)	1.2	1.66
Eat beans, peas, or lentils?	175 (54.4)	68 (21.2)	31 (9.7)	19 (5.9)	11 (3.4)	6 (1.9)	6 (1.9)	5 (1.6)	1.03	1.58
Eat eggs?	33 (10.3)	55 (17.1)	65 (20.2)	74 (23.1)	56 (17.4)	20 (6.2)	7 (2.2)	11 (3.4)	2.64	1.69
Eat more than one serving of fruit such as apples, bananas, oranges, melon, watermelon, papaya, or raisins?	21 (6.5)	49 (15.3)	46 (14.3)	63 (19.6)	29 (9.0)	32 (10.0)	22 (6.9)	59 (18.4)	3.58	2.24
Eat more than one serving of vegetables such as broccoli, collard greens, spinach, potatoes, squash or sweet potatoes?	15 (4.7)	37 (11.5)	34 (10.6)	40 (12.5)	29 (9.0)	40 (12.5)	32 (10.0)	94 (29.3)	4.33	2.32
Drink milk (in a glass, with cereal, or in coffee, tea or cocoa)?	110 (34.3)	74 (23.1)	54 (16.8)	38 (11.8)	14 (4.4)	4 (1.2)	4 (1.2)	23 (7.2)	1.73	1.98
Eat whole grain breads, cereals, grits, oatmeal or brown rice?	163 (50.8)	70 (21.8)	39 (12.1)	35 (10.9)	8 (2.5)	1 (0.3)	2 (0.6)	3 (0.9)	1.00	1.35
Eating salt more than 6 gram (one teaspoon) per day?	127 (39.6)	115 (35.8)	32 (10.0)	22 (6.9)	11 (3.4)	8 (2.5)	2 (0.6)	4 (1.2)	1.14	1.43
Eating fried food such as chicken, or fish?	18 (5.6)	41 (12.8)	45 (14)	82 (25.5)	55 (17.1)	39 (12.1)	16 (5.0)	25 (7.8)	3.31	1.89
Eating fatty foods?	156 (48.6)	116 (36.1)	34 (10.6)	10 (3.1)	3 (0.9)	1 (0.3)	1 (0.3)	0	0.73	0.93
Eat pickles, olives, or other vegetables in brine?	210 (65.4)	62 (19.3)	18 (5.6)	19 (5.9)	4 (1.2)	2 (0.6)	4 (1.2)	2 (0.6)	0.68	1.26

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Cont. Table 3. Self-Care among Hypertension Patients

Item	Measurement							Mean	SD
	Medication Usage								
	0	1	2	3	4	5	6		
Physical Activity									
Do at least 30 minutes total of physical activity?	0 75 (23.4)	1 50 (15.6)	2 23 (7.2)	3 21 (6.5)	4 13 (4.0)	5 10 (3.1)	6 6 (1.9)	7 123 (38.3)	3.60 2.98
Do a specific exercise activity (such as swimming, walking, or biking) other than what you do around the house or as part of your work?	156 (48.6)	48 (15.0)	28 (8.7)	21 (6.5)	13 (4.0)	7 (2.2)	8 (2.5)	40 (12.5)	1.81 2.45
Smoking									
Smoke a cigarette or cigar, even just one puff?	261 (81.3)	9 (2.8)	3 (0.9)	5 (1.6)	3 (0.9)	2 (0.6)	0	38 (11.8)	0.99 2.31
Stay in a room or ride in an enclosed vehicle while someone was smoking?	223 (69.5)	23 (7.2)	17 (5.3)	20 (6.2)	11 (3.4)	6 (1.9)	0	21 (6.5)	1.05 1.99
Weight management									
I am careful about what I eat	6 (1.8)	18 (5.6)	23 (7.2)	8 (2.5)	24 (7.5)	3 (0.9)	1 (0.3)	34 (10.6)	3.67 0.83
I read food labels when I grocery shop	24 (7.5)	145 (45.2)	153 (47.7)	168 (52.3)	140 (43.6)	132 (41.1)	150 (46.7)	11 (3.4)	3.21 0.91
I exercise in order to lose or maintain weight	2 (0.6)	4 (1.2)	3 (0.9)	4 (1.2)	3 (0.9)	3 (0.9)	1 (0.3)	26 (8.1)	3.53 0.70
I have cut out drinking sugary sodas and sweet tea	4 (1.2)	3 (0.9)	3 (0.9)	3 (0.9)	3 (0.9)	3 (0.9)	1 (0.3)	16 (5.0)	3.33 0.74
I eat smaller portions or eat fewer portions	3 (0.9)	13 (4.0)	18 (5.6)	11 (3.4)	17 (5.3)	20 (6.2)	11 (3.4)	15 (4.7)	3.50 0.69
I have stopped buying or bringing unhealthy foods into my home	1 (0.3)	3 (0.9)	3 (0.9)	3 (0.9)	3 (0.9)	3 (0.9)	3 (0.9)	14 (4.4)	3.45 0.66
I have cut out or limit some foods that I like but that are not good for me	6 (1.9)	11 (3.4)	17 (5.3)	18 (5.6)	18 (5.6)	18 (5.6)	18 (5.6)	12 (3.7)	3.48 0.70
I eat at restaurants or fast-food places less often	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	35 (10.9)	3.77 0.75
I substitute healthier foods for things that I used to eat	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	6 (1.9)	25 (7.8)	3.54 0.78

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Table 4. Correlation of factors to self-care in hypertensive patients

Variables	Pearson Chi-square	P-value
Gender	14.100	0.001*
Age	10.866	0.093
Education Level	21.088	0.020*
Occupation	1.479	0.477
Routine control	0.355	0.837
Long diagnosed	0.256	0.880
Medication	0.615	0.735

*Significancy at $p < 0.05$

to work harder with each contraction; the bigger and more often the heart muscle pumps, the greater the pressure that is imposed on the arteries so that blood pressure increases (Karim et al., 2018). Tamamilang et al. (2018) confirmed that lack of physical activity can lead to cerebrovascular accident further leading to disability and even death. Low physical activity and already in a chronic stage, contributes to a low level of cardiorespiratory fitness, which is a factor for worsening cardio metabolism compared to other risk factors (Benjamin et al., 2018). The importance of physical activity is related to the increased secretion of vasodilator substances such as nitric oxide. In addition, physical activity will also reduce catecholamine levels and increase insulin sensitivity, both of which are associated with a decrease in sodium and water retention, which causes a decrease in blood pressure (Karatzis et al., 2018).

The results of this study showed that none of the respondents consumed alcohol. However, this does not rule out the possibility that alcohol consumption in sufferers needs to be avoided. It is emphasized in research (Ramadhani, 2021) that alcohol has a long-term effect that will increase cortisol levels in the blood so that the activity of the renin-angiotensin-aldosterone system (RAAS), which functions to regulate blood pressure and body fluids increases; alcohol consumption increases the volume of red blood cells so that blood viscosity increases and causes hypertension. The ethanol compound in alcohol can physiologically increase cortisol levels when consumed, thereby increasing blood pressure in the arteries as a result of which the heart pumps blood more forcefully to flow throughout the body, then the blood vessels become stiff and narrow so they cannot expand or vasoconstriction occurs (Dewi et al., 2021).

More than half of the total respondents on the weight management item are unsure about weight management. This relates to patient demographic data including gender and age. Gender influences weight management behavior in people with hypertension. Asih (2021) states that women have better behavior habits than men. As for age related to the process of weight management in research, it was reported that increasing age will affect a person's independence, especially in meeting the needs of daily life and self-management such as

weight (Sakinah et al., 2020).

There is relationship between gender and self-care among hypertensive patients. Due to the majority of the sample being women, smoking is not a problem in self-management processes related to health due to hypertension. Smoking behavior also has a relationship with the incidence of hypertension; in smoking, the nicotine contained in cigarettes is absorbed into the bloodstream, causing damage to the arteries, triggering the process of atherosclerosis and increasing blood pressure.

There is relationship between educational level and self-care among hypertensive patients. Education can be a factor that can affect a person's adherence to treatment (Kartikasari et al., 2022) Okatiranti et al.'s (2017) findings on knowing the level of knowledge of hypertensive patients also corroborates the results of this study, that respondents who have a good level of knowledge are those with a high level of education. The higher a person's education level, the better his knowledge, so that this results in an increase in one's potential to maintain and improve health. In addition, previous study reported that there were also a significant association between education ($p=0.005$) with diet adherence among adult hypertensive patients in Padang (Gusty & Merdawati, 2020).

Conclusion

This study sought to determine the factors having significant differences in self-care management among patients with hypertension in a primary healthcare setting. This study highlights self-care management among patients with hypertension has a significant difference in gender, age and education level.

Declaration of Interest

There is no conflict of interest.

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