



Correlation between Severity Susceptibility, Health Threats, Obstacles, Benefit and Self Efficacy with Medication, Diet Management and Capability of Hypertension Patients at Public Health Center In Surabaya

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Abstract. Hypertension sufferers as chronic disease sufferers must receive ideal services to maintain a healthy and regular lifestyle. Successful management of hypertension requires continued engagement in barriers, benefits, and self-efficacy behaviors such as adhering to medication regimens, diet, and the patient's ability to self-care. This study aims to find the relationship between Severity Susceptibility, Health Threats, Obstacles, Benefits, and Self Efficacy with Medication, Diet Management, and Capability in hypertensive patients. This research is an analytical observational study with a cross-sectional approach, the population in this study is hypertensive patients in Surabaya who visited the Tambak Rejo, Pacar Keling, and Pucang Sewu Health Centers. A total of 150 respondents based on inclusion and exclusion criteria were selected using consecutive sampling techniques. The research results showed a positive influence on perceptions of self-efficacy and barriers to the patient's ability to care for themselves, diet management, and patient treatment. This was shown by the path analysis test with the results of self-efficacy (0.001), barriers (0.016), and barriers to treatment (0.013) with significance ($P < 0.005$). Meanwhile, there is a negative influence of perceived barriers (0.000) and self-efficacy (0.000) on the patient's self-care ability and diet management. There is a relationship between Severity Susceptibility, Health Threats, Obstacles, Benefits and Self Efficacy with Medication, Diet Management, and Capability in hypertensive patients. All perceptions are related and influence decisions in order to maintain patient health. More in-depth testing and solutions are needed to respond to perception problems that have a negative influence.

Keywords: hypertension, correlation, *self-efficacy*

1 Introduction

Surabaya is one of the cities with the highest prevalence of hypertension in Indonesia, namely 45,015 sufferers. The prevalence of hypertension based on measurement results in residents aged 18 years is 34.1% [1]. From the prevalence of hypertension of 34.1%, it is known that 8.8% were diagnosed with hypertension 13.3% of people diagnosed with hypertension did not take medication and 32.3% did not take medication regularly. The reasons for hypertensive patients not taking medication include those with hypertension feeling healthy (59.8%), irregular visits to health facilities (31.3%), taking traditional medicine (14.5%), using other therapies (12.5%), forgot to take medication (11.5%), could not afford to buy medication (8.1%), had drug side effects (4.5%), and hypertension medication was not available at Health Facilities (2%) [2, 3]. According to the 2014 Indonesian Sample Registration System (SRS) data, hypertension with complications (5.3%) is the number 5 (five) cause of death at all ages. The Institute for Health Metrics and Evaluation (IHME) in 2017 stated the risk factors for premature death and disability in the world based on the Disability Adjusted Life Years (DALYs) figures for all age groups. Based on the DALYs, the three highest risk factors in men are smoking, increased systolic blood pressure, and increased sugar levels [4, 5]. Data from the World Health Organization (WHO) in 2015 shows that around 1.13 billion people in the world have hypertension, meaning that 1 out of 3 people in the world is diagnosed with hypertension [6, 7].

Poltekkes Kemenkes Surabaya is a health education institution that continues to strive to implement the tri dharma of higher education whose goal is to make people live healthy, continue to facilitate their staff so that they are always looking for breakthroughs to assist people towards a healthy Indonesia. It is undeniable that most people use herbs as a companion to the treatment of chronic diseases. Treatment of hypertension must be carried out for life.

The definition of hypertension or high blood pressure is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg on two measurements with an interval of five minutes in a state of sufficient rest/calm. Systolic blood pressure is the main measurement that forms the basis for determining the diagnosis of hypertension. The division of the degree of severity of hypertension in a person is one of the basics for determining the management of hypertension. Management of hypertension is carried out through 2 types, namely non-pharmacological and pharmacological therapy. The Chronic Care Model (CCM) is a well-established and validated framework that describes a comprehensive approach to treating chronic pain that supports improved functional and clinical outcomes. This provides a blueprint for changing the service system to improve chronic disease care. The chronic care model (CCM), developed by Wagner (1998), is an approach that has been widely used in various healthcare settings to guide the improvement of chronic disease care systems. Management of hypertension is carried out through 2 types, namely non-pharmacological and pharmacological therapy [8, 9]. Management of hypertension in patients with heart and blood vessel disease is aimed at preventing death, and complications such as myocardial infarction, and stroke, reducing the frequency and duration of myocardial ischemia, and improving signs and symptom.

Hypertension patients as sufferers of chronic diseases must receive ideal services to continue to carry out a healthy lifestyle in a proper and orderly manner. This healthy lifestyle must be implemented regularly to prevent acute complications and long-term complications [10, 11].

Based on the description above, research will be carried out on the relationship between vulnerability to severity, health threats, barriers, benefits, and self-efficacy with medication, diet management, and the ability of hypertensive patients at Public Health Center Surabaya

2 Methods

This study is an analytical observational study with a cross-sectional approach, the population in this study is hypertensive patients in Surabaya who visit Public Health Tambak Rejo, Pacar Keling, and Pucang Sewu. A total of 150 respondents according to inclusion and exclusion criteria were selected using consecutive sampling techniques. The sample in this study was some of the hypertensive patients in Surabaya who visited the Public Health., with the following criteria: aged 40-60 years, suffering from hypertension for 2-5 years, did not have comorbidities, and were willing to become respondents by signing a consent sheet as a respondent. Hypertensive patients selected as research subjects will be given a questionnaire to explore factors that are thought to influence the lifestyle of hypertensive patients. Variables in this research is relationship between vulnerability to severity, health threats, barriers, benefits, and self-efficacy with medication, diet management, and the ability of hypertensive patients. Analysis uses frequency distribution by calculating the frequency or number and percentage of the aspects being measured. Descriptive analysis is also aimed at describing the indicators for each research variable based on the tendency of respondents' responses to the questions in the research instrument. The description of each indicator is presented in frequency values and percentages. This research uses data analysis methods using software SmartPLS version 3.0. PLS (Partial Least Square) is a variant-based structural equation analysis (SEM) that can simultaneously test measurement models and test structural models This research has been declared ethically appropriate with ethical number No.EA/946.1/KEPK-Poltekkes_Sby/V/2022.

3 Results

The research was carried out starting in June 2022 and ending in August 2022 in the working areas of the Pucang Sewu Health Center, Pacar Keling, and Tambak Rejo Surabaya.

Table 1. Characteristics of Hypertension Patients in Surabaya June-August 2022

Characteristics of Respondents	Category	Frequency	Percentage (%)
Gender	Man	30	20.0
	Woman	120	80.0

	Total	150	100.0	
Ethnic group	China	1	0.7	
	Java	148	98.7	
	Madura	1	0.7	
	Total	150	100.0	
Education	SD	18	12.0	
	Junior high school	31	20.7	
	High school	80	53.3	
	D2	1	0.7	
	D3	6	4	
	Bachelor	13	8.7	
	Masters	1	0.7	
	Total	150	100.0	
Work	Midwife	1	0.7	
	Doctor	1	0.7	
	Lecturer	1	0.7	
	Teacher	1	0.7	
	Housewife	100	66.7	
	Cadre	4	2.7	
	Trader	1	0.7	
	Retired	7	4.7	
	Nurse	3	2.0	
	Private	31	20.7	
		Total	150	100.0
	Religion	Islam	141	94.0
Catholic		5	3.3	
Christian		4	2.7	
	Total	150	100.0	
Marital status	Single	3	2.0	
	Widow, Widower	34	22.7	
	Marry	113	75.3	
	Total	150	100.0	
Family History With Hypertension	Yes	69	46.0	
	No	81	54.0	
	Total	150	100.0	
Complementary	Garlic	63	42.0	
	Star fruit	9	6.0	
	African leaves	4	2.7	
	Bay leaf	17	11.3	
	Cinnamon	24	16.0	
	Noni	10	6.7	
	bitter gourd	3	2.0	
	Massage	5	3.3	
	Celery	11	7.3	
	Cucumber	4	2.7	
		Total	150	100.0

The sex of the majority of respondents is female (80%), the most ethnicity is Javanese (98.7%), education ranging from elementary school to postgraduate masters, the most high school education is 53.3%, the profession is mostly housewives 66.7%, the majority religion is Islam 94%, the status of those who are married is also at most 75.3%.

Patients with a history of hypertension were 69 people (46%) and none were 54%. The most widely consumed herbal type is garlic (42%) (shown in Table 1.)

Table 2. Characteristics of Hypertension Patients in Surabaya Based on Statistical Values

Category	Min value	Maximum value	Means	Median	St. Deviation
Age	36	83	59.57	59.50	10,748
Income	375000	7000000	2251000.00	2000000.00	1153463.125
Weight	41	88	63.25	63.50	9,761
Height	137	180	155.03	155.00	6,826
Cholesterol	110	400	209.49	198.00	59,576
Systole	100	200	147.05	147.00	18,882
Diastole	60	104	86.37	90.00	8,694

Table 2 shows that the characteristics of the respondents in the form of ratio data from age to diastolic use the median (range) and the mean or average + standard deviation. The average age of the respondents was 59 years, income 2 million, body weight 63.5 kg, height 155 cm, cholesterol 198, systolic 147 mg/KgBb, diastolic 86.73. +8,694.

3.1 Result of Perceptual Analysis Pathway Analysis of Severity Susceptibility, Health Threats, Obstacles, Benefits and Self-Efficacy with Medication, Diet Control and Patient Ability

The research variables in the form of total scores were then categorized into 3 categories, namely low, medium, and high. Low category if the respondent's answer score divided by the total score is less than 50%.

Table 3. Descriptions Variables Research

Variable	Category	Frequency	Percentage (%)
Treatment	Low	112	74.7
	Keep	30	20.0
	Tall	8	5.3
	Total	150	100.0
Diet Regulation	Low	117	78.0
	Keep	33	22.0
	Total	150	100.0
Patient Capabilities	Low	6	4.0
	Keep	35	23.3
	Tall	109	72.7
	Total	150	100.0
Perception of Severity Vulnerability	Low	11	7.3
	Keep	85	56.7
	Tall	54	36.0
	Total	150	100.0

Health Threat Perception	Low	9	6.0
	Keep	71	47.3
	Tall	70	46.7
	Total	150	100.0
Perception of Obstacles	Low	34	22.7
	Keep	102	68.0
	Tall	14	9.3
	Total	150	100.0
Perception of Benefits	Low	1	0.7
	Keep	67	44.7
	Tall	82	54.7
	Total	150	100.0
Perception Self Efficacy	Low	1	0.7
	Keep	65	43.3
	Tall	84	56.0
	Total	150	100.0

Table 3 shows that, based on the descriptive data, a summary of variables can be seen, for the treatment variable there were more low answers, 112 (74.7%), diet management was also in the low category, 117 (78%) and there was no good category. The ability of respondents in the high category was 109 respondents or (72.7%). Perceived vulnerability severity was (50%) more in the medium answer and (36%) in the high category. The perception of health threats is almost the same as medium and high, namely (47.3%) and (46.7%). Perception of barriers is more than (50%) of answers in the medium category, namely (68%). The perception of benefits that answered high was (54.7%), and 44.7% moderate. Likewise, the perception of self-efficacy was 56% high and 43.3% moderate.

In this section, a statistical test will be carried out to determine the relationship between perceptions of vulnerability to severity, health threats, barriers, benefits, and self-efficacy with medication, dietary adjustments, and patient abilities using path analysis tests. The path analysis test was processed using the Smart PLS 3.4.0 program. PLS was chosen because it can be used to test complex relationships and use a variety of measurement scales. Here are the test results in the form of images Fig. 1.

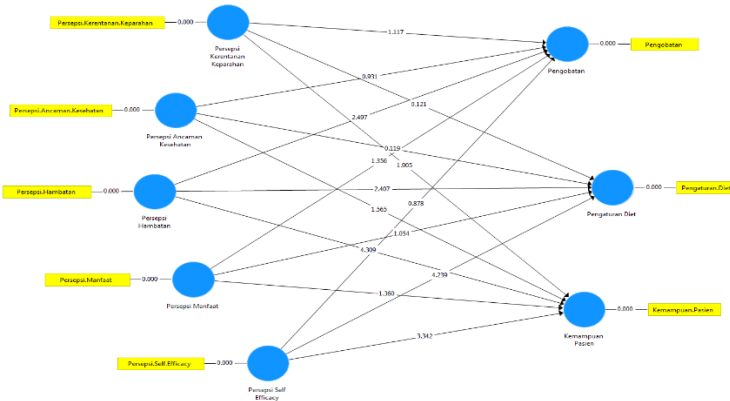


Fig. 1. Path analysis test results with PLS

The test results in the form of t-values and their significance level can be seen in the Table 4. Furthermore, to find out the magnitude of the contribution of exogenous variables to endogenous, it can be seen from the value of the coefficient of determination.

Table 4. Coefficient of Determination

Relationship Between Variables	R Square Adjusted
Perceived Health Threats, Perceived Barriers, Perceived Vulnerability Severity, Perceived Benefits, and Perceived Self-Efficacy → Patient Ability	0.297
Perceived Health Threats, Perceived Barriers, Perceived Susceptibility to Severity, Perceived Benefits, and Perceived Self-Efficacy → in Diet Management	0.156
Perceived Health Threats, Perceived Barriers, Perceived Vulnerability Severity, Perceived Benefit and Perceived Self-Efficacy → Treatment	0.045

Table 4 shows that The results of the coefficient of determination showed that the highest value was the relationship between perceptions of health threats, perceptions of obstacles, perceptions of vulnerability to severity, perceptions of benefits, and perceptions of self-efficacy towards patient abilities, namely 29.7%. This means that the contribution of Perceived Health Threats, Perceived Obstacles, Perceived Susceptibility to Severity, Perceived Benefits, and Perceived Self-Efficacy on changes in patient ability is 29.7%, the rest is by other variables not examined. The second largest sequence is the relationship between perceptions of health threats, perceived obstacles, perceived vulnerability to severity, perceived benefit, and perceived self-efficacy towards dietary regulation by 15.6%. The lowest is the relationship between perceptions of health threats, perceptions of obstacles, and perceptions of vulnerability to severity.

3.2 Herbal Benefit Test Results

The next test is to find out the benefits of herbs in controlling cholesterol levels and blood pressure.

Table 5. The mean value of the herbal benefit

Herbs	Information	Cholesterol	Systole	Diastole
Garlic	N	63	63	63
	Median	204	140	90
Cinnamon	N	24	24	24
	Median	211	150	90
Bay leaf	N	17	17	17
	Median	160	150	90
Celery	N	11	11	11
	Median	218	155	90
Noni	N	10	10	10
	Median	206.5	153.5	90
Star fruit	N	9	9	9
	Median	160	135	80
Massage	N	5	5	5
	Median	195	152	80
African leaves	N	4	4	4
	Median	201.5	155	90
Cucumber	N	4	4	4
	Median	165.5	127.5	85
Bitter gourd	N	3	3	3
	Median	218	155	90
Kruskall Wallis p value		0.110	0.289	0.278

Table 5 shows that the herbs that respondents often used successively were garlic, then cinnamon, saun salam, celery, noni, starfruit, African leaves, cucumber, and bitter melon. Then there is one way by not consuming herbal medicinal plants but choosing the massage method.

Of all the herbs used and their impact on cholesterol, systolic and diastolic blood pressure were tested by different tests. Because the value of the normality test results is not normal, the difference test used is Kruskal Wallis. The calculation results show that the Kruskal-Wallis significance value is above 0.05. This means that there is no difference in cholesterol levels, and systolic and diastolic blood pressure, both using garlic and bitter melon herbs. This means that all of these ingredients can be used to lower cholesterol, systole, and diastole. However, from the median value, it can be seen that the lowest cholesterol is when the respondent consumes bay leaves. The lowest systole was in cucumber and the lowest diastole was in starfruit.

4 Discussion

4.1 Result of Perceptual Analysis Pathway Analysis of Severity Susceptibility, Health Threats, Obstacles, Benefits and Self-Efficacy with Medication, Diet Control and Patient Ability

Based on the descriptive data, a summary of variables can be seen, for the treatment variable there were more low answers, 112 (74.7%), diet management was also in the low category, 117 (78%) and there was no good category. The ability of respondents in the high category was 109 respondents or (72.7%). Perceived vulnerability severity was (50%) more in the medium answer and (36%) in the high category. The perception of health threats is almost the same as medium and high, namely (47.3%) and (46.7%). Perception of barriers is more than (50%) of answers in the medium category, namely (68%). The perception of benefits that answered high was (54.7%), and 44.7% moderate. Likewise, the perception of self-efficacy was 56% high and 43.3% moderate.

The results of the analysis show a significant relationship for only two independent variables, namely perceived barriers and self-efficacy [12, 13]. The finding that self-efficacy correlates with self-care is consistent with Bandura's postulate in Social Cognitive Theory that self-efficacy drives self-care behavior. Individuals with low self-efficacy tend not to engage in self-care behavior [14, 15]. This is in accordance with the opinion of Yuting that at self-efficacy influences behavior by influencing individual motivation to make behavior changes. Individuals with low self-efficacy have low motivation to change their behavior [16, 17]. This is also consistent with previous research Singh which investigated self-care behavior in adults with hypertension and reported that self-care performance was low because individuals lacked motivation to change their lifestyle [18, 19]. Perceived barriers have a very strong relationship with the patient's ability to carry out self-care, and treatment compliance. According to Miao the idea of self-managing chronic disease through behavior change has received attention as part of a scientific discipline called lifestyle medicine [20, 21]. Lifestyle medicine involves acquiring skills and competencies in adopting health-promoting behaviors and overcoming health-harming behaviors. It presents a new approach to the treatment and prevention of non-communicable diseases [22].

Meanwhile, self-efficacy has a very strong relationship with the patient's ability to carry out self-care and manage an anti-hypertensive diet. However, research found that there was no significant relationship between self-efficacy and patient diet management [23, 24]. Perception of self-efficacy also negatively influences patient diet management. However, perceived barriers have a positive influence on patient diet management. However, in several research literature, it was found that one of the obstacles to losing weight, or dieting, is the perception of barriers regarding ability beliefs. Research Mark. M, states that in the challenge of losing weight in women with gestational diabetes (GDM), one of the most striking obstacles is related to the family environment, beliefs about abilities and behavioral regulation. they. Among all these intersecting relationships is the patient's ability to perform self-care and dietary adjustments to perceived barriers and self-efficacy. This shows that to improve the health status of hypertensive patients it is necessary to reduce perceived barriers and

self-efficacy [25]. Pathaka findings state that many studies say that someone who has self-care *self-efficacy* Those who are high will have a healthier body, healthier mental health, better quality of life, fewer symptoms of disease, and more adaptive coping with chronic disease [26]. Another research Bryan conducted in Indonesia found similar facts, that self-efficacy does not improve health behavior in hypertensive patients, but knowledge about diet has a significant effect on improving health behavior. This condition may be due to differences in social support and the effectiveness of health promotion regarding the hypertension diet. In addition, it could be possible because respondents have perceived barriers that are greater than self-efficacy [27].

4.2 Herbal Benefit Test Results

Based on the data, it shows that the herbs that respondents frequently use are garlic, cinnamon, bay sauce, celery, noni, star fruit, African leaves, cucumber, and bitter melon. Then there is one way by not consuming herbal medicinal plants but choosing a massage method. This study is the first to find this association in a population of more than 100 people. Tailored provides a comprehensive understanding of the barriers and supporting factors at the health system and individual levels as well as strategies for treating and controlling hypertension. Perceived barriers and self-efficacy are related to each other in improving the health behavior of hypertensive patients [28]. Patients who had good levels of these two variables were found to use herbal drinks such as garlic, cinnamon, bay leaves, celery, noni, star fruit, African leaves, cucumber, and bitter melon. We can easily find these herbs around us. The use of herbs is also easy and cheap [29, 30].

Based on Shaito reserch with respondent compliance, the benefits of this herbal plant will be maximized. This behavior continues even though there is no direct order from health workers [31, 32]. However, respondents said and believed that there were benefits from this behavior so that it was maintained and had a significant impact on their health. This was demonstrated by improved cholesterol and blood pressure values in the majority of respondents. However, from the median value, it can be seen that the lowest cholesterol is when the respondent consumes bay leaves. The lowest systole was in cucumber and the lowest diastole was in starfruit. Furthermore, Standberg states that supporting factors are personal or contextual factors that facilitate actions or behaviors needed for the treatment and control of hypertension. This includes, for example, perceptions of illness severity and family support [33–35].

5 Conclusion

The conclusion of this research is that several findings are presented below, namely that there is a relationship between Severity Susceptibility, Health Threats, Obstacles, Benefits, and Self Efficacy with Medication, Diet Management, and Capability in hypertensive patients. The higher the perception of barriers, the higher the treatment and diet management will be. However, there has been no significant influence on the patient's ability to care for themselves. The higher the perceived benefit, the higher the

treatment and diet management. But not on the patient's ability to care for themselves. High levels of self-efficacy and treatment are influenced by perceived self-efficacy, but not by diet management. Current researchers provide an overview of the relationship related to these perceptions. Future research should evaluate the effectiveness of this strategy in the context of the health system primarily as hypertension control.

Hypertension patients in Surabaya, most of whom still do not follow an anti-hypertension diet properly and correctly, most of them can take good care of themselves, almost all of them still use herbs as a companion to anti-hypertension drugs without the supervision of health workers. Respondents believe in the benefits that can be derived from the herbs they choose as traditional anti-hypertension therapy. There needs to be continued research on assisting hypertensive patients in using complementary herbs, further research in the form of trial modules that have been prepared for hypertensive patients with explanations and assistance from nurses to patients using a chronic care model approach using different approaches, such as simplifying treatment using drugs pharmacological and improving adherence to treatment, monitoring hypertension routinely and conveniently through home blood pressure measurements and providing educational interventions to patients and caregivers.

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