

ORIGINAL ARTICLE**Self-Efficacy, Dietary Adherence, and Medication Compliance among Hypertension Patients.****Sri Astutik Andayani^{1*}, Baitus Sholehah², Muh. Kamaruzzaman³**¹ Universitas Nurul Jadid, Indonesia² Universitas Nurul Jadid, Indonesia³ Universitas Nurul Jadid, Indonesia

* Corresponding Author: astutikandayani@unuja.ac.id

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KeywordsSelf-Efficacy; Dietary
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Introduction: Hypertension is a significant non-communicable disease that is a global health priority due to its status as a major risk factor for cardiovascular conditions such as stroke, heart failure, and myocardial infarction. A lack of public awareness regarding the detrimental effects of hypertension remains a critical issue, compounded by non-compliance with dietary and medication regimens, which exacerbates the condition of hypertensive patients. **Objectives:** This study aims to identify the factors influencing dietary adherence and medication compliance among hypertensive patients. **Methods:** A cross-sectional design was employed in this study, which focused on hypertensive patients from Alasbayur Village and Campoan Village, totaling 500 individuals. Using the Slovin formula, a sample of 222 participants was selected. Data were collected through a closed questionnaire, where respondents indicated their answers by marking their responses. Data analysis included bivariate analysis using the Spearman test and multivariate analysis using logistic regression. The research was conducted between March and April 2023. **Results:** Among the factors tested, four independent variables were significantly associated with adherence to diet and medication: perceived severity ($P = 0.005$), perceived benefits ($P = 0.017$), cues to action ($P = 0.019$), and self-efficacy ($P = 0.021$). Two variables showed no significant association: perceived vulnerability ($P = 0.34$) and perceived barriers ($P = 0.165$). **Conclusions:** The study identifies four variables that are significantly related to dietary adherence and medication compliance in hypertension patients. Conversely, perceived vulnerability and perceived barriers are not significantly associated with adherence, suggesting that other factors may influence these behaviors.

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A. Introduction

Hypertension is still the disease most commonly suffered by Indonesian people. Hypertension is one of the non-communicable diseases which is currently a priority in the world of health globally. Apart from being a type of non-communicable disease, hypertension is a major risk factor for cardiovascular diseases such as stroke, heart failure and myocardial infarction.(Obirikorang et al., 2018). Lack of public awareness as well Non-compliance with diet and medication consumption is still one of the causal factors that worsens the condition of hypertension sufferers(Susanto et al., 2018).

The incidence of hypertension continues to increase every year, worldwide data shows that the number of adults aged 30-79 years with hypertension has increased from 650 million to 1.28 billion in the last thirty years.(WHO, 2021). In 2018, the prevalence of hypertension sufferers for age groups ≥ 18 years old in Indonesia it was 34.1%, This has increased compared to the prevalence of hypertension in 2013 of 25.8%(Riskesdas 2018). Meanwhile, the estimated number of hypertension sufferers in East Java Province is around 11,952,694 people, with the proportion of men being 48% and women being 52%.(East Java Province Health Office, 2020), the estimated cases of hypertension in Situbondo Regency in 2021 are 147,164 people, (26.24% of them are in the age range ≥ 15 years)(Situbondo District Health Office, 2021)

Based on a preliminary study conducted by researchers, data was obtained from the Mlandingan Community Health Center in 2022, the number of hypertension sufferers with an age range of 15-59 years was 1658, divided into 7 villages, and there were 2 villages with the most hypertension sufferers, namely; Campoan Village 225 people and Alasbayur Village 275 people.

Hypertension control focuses more on providing health education, however the public health mindset and behavior is still minimal so the incidence of hypertension and the complications that occur are still high. According to research by Batlajery & Soegijono, (2019) stated that changing mindsets about health is very important, so that lifestyle can be changed for the better, so the health belief model (HBM) theory is used to look at the awareness of hypertension sufferers about the disease they suffer and the actions they take. carried out to prevent and reduce it.

Health belief model (HBM) is a model created in 1950, which aims to understand why individuals have difficulty following prevention programs in the context of health(Rosenstock, 1974)According to the health belief model theory, there are six aspects of thinking in an individual, namely perceived susceptibility, perceived severity, perceived benefit, perceived barrier, cues to action (perception of severity). cues to action), self-efficacy (self-confidence to carry out health behavior)(Hupunau, 2019).

Based on the construction of the health belief model, individuals who have a high perception of vulnerability, perception of severity and perception of obstacles have better compliance than individuals with a low perception. This proves that perceptions of vulnerability and low perceptions of severity can trigger bad lifestyles, but this can be prevented by increasing individual perceptions of health to form compliance behavior.(Heydari et al., 2014)

B. Methods

The research design in this study uses a correlational design which is used to look for the relationship between two variables using a cross-sectional approach (Abdullah, 2015). This research was carried out in April 2023 - June 2023 at the Mlandingan Community Health Center working area, Situbondo. In 2023 (2 villages), namely: Campoan Village and Alasbayur Village. In this study, the population studied was 500 people and a sample of 222 people was found using the Slovin Formula. The sampling technique for each village in this study uses proportional cluster random sampling, namely a technique for collecting data on a population consisting of groups of individuals or clusters, the number of which in each area is not homogeneous and the areas are proportional and random. (Rahmadi, 2011) The independent variables in this research are perceived vulnerability, perceived severity, perceived benefits, perceived barriers, cues to action, self-efficacy, and the dependent variables are diet compliance and taking medication. The data in this study were collected from questionnaires distributed by researchers and then tested using SPSS consisting of univariate tests, bivariate tests using the Spearman Rank test, multivariate tests using the Logistic Regression Test.

C. Results and Discussion

In the results of table 1. Above, the significance value for the perceived vulnerability variable is 0.34 ($0.34 > 0.05$), which shows that there is no significant relationship between perceived vulnerability to diet compliance & taking hypertension medication, and the Coef value. Correlations 0.064 which means the correlation level is very low. The perceived severity variable obtained a significance value of 0.005 ($0.005 < 0.05$), which means there is a significant relationship between perceived severity and diet compliance & taking hypertension medication, as well as the Coef value. Correlations 0.188 which means the correlation level is very low. The perceived benefit variable has a significant relationship with diet compliance & taking medication due to a significance value of 0.017 ($0.017 < 0.05$) with the Coef value. Correlations 0.160 which means the correlation level is very low. The perceived barriers variable does not have a significant relationship with diet compliance & taking medication due to the significance value of 0.165 ($0.165 > 0.05$) with the Coef value. Correlations 0.093 which means the correlation level is very low. The signal to act variable obtained a significance value of 0.019 ($0.019 < 0.05$), which means there is a significant relationship between the signal to act on diet compliance & taking hypertension medication, as well as the Coef value. Correlations 0.157 which means the correlation level is very low. The self-efficacy variable obtained a significance value of 0.021 ($0.021 < 0.05$), which means there is a significant relationship between self-efficacy and diet compliance & taking hypertension medication, as well as the Coef value. Correlations 0.155 which means the correlation level is very low.

Table 1. Spearman Correlation Test Results "Health Belief Model on Diet Compliance & Taking Hypertension Medication"

Health belief model	Compliance with diet & taking medication	
	Correlation coefficients	Significance Value
Perception of vulnerability	0.064	0.34
Perception of severity	0.188	0.005
Perceived benefits	0.160	0.017
Perceived obstacles	0.093	0.165
Cue action	0.157	0.019
Self-efficacy	0.155	0.021

From table 2, it can be seen that there are 3 independent variables that influence the dependent variable, namely the perceived severity variable (X2) with a sig value of $0.000 < 0.05$, the perceived benefit variable (X3) with a sig value of $0.000 < 0.05$, and the action signal variable (X5) with a sig value of $0.018 < 0.05$, and the self-efficacy variable (X6) has no influence on the dependent variable because the sig value is $0.322 > 0.05$. Meanwhile, of the 3 independent variables X2, X3 and (X3 & X5).

Table 2. Logistic Regression Test Results

	B	S.E	Wald	Df	Sig.	Exp(B)
Step 1						
X2	3,080	0.500	37,892	1	0,000	21,757
X3	1,955	0.477	16,829	1	0,000	7,064
X5	1,586	0.671	5,584	1	0.018	4,885
X6	0.689	0.695	0.983	1	0.322	1,992
Constant	-11,603	1,773	42,844	1	0,000	0,000

1. The Relationship between Perceptions of Susceptibility to Diet Compliance & Taking Hypertension Medication in the Mlandingan Situbondo Community Health Center Work Area.

The results of the study showed that perceived vulnerability was not related to diet compliance & taking medication ($p=0.34$) in hypertension sufferers in the Mlandingan Community Health Center working area, Situbondo. The researcher's assumption is that this is because there are other factors that influence a person's diet and medication compliance, such as economic, educational, environmental and socio-cultural factors. This is in line with research (Ekawati, et.al 2020) which states that there is no relationship between perceived vulnerability ($P=0.650$) and the problem of nutritional status of children under five, because there are other factors that influence nutritional status, namely eating habits, physical and social environmental factors.(Ekawati et al., 2020). However, it is different from research(Narsih & Hikmawati, 2020)which states that there is a relationship between perceived vulnerability ($P=0.000$) and behavior to prevent anemia in adolescent girls, because the higher the perception of vulnerability of adolescent girls, the more they have good behavior towards preventing anemia.(Narsih & Hikmawati, 2020). Then, it can also be seen that respondents with a positive perception of vulnerability tend to have a high level of diet and medication compliance. Respondents' perceptions that they are susceptible to hypertension can be influenced by congenital or hereditary hypertension, this is in line with research by Rayanti, Nugroho and Marwa which states that 77% of respondents feel that they are susceptible to hypertension, because the majority of respondents have families with a history of hypertension for more than 2 years. 56%(Rayanti, Nugroho, nd).According to Szabo and Piko. a feeling of vulnerability or threat of experiencing an illness can increase a person's readiness and motivation to change behavior to be healthier(Piko, 2019).

2. The Relationship between Perceived Severity and Diet Compliance & Taking Hypertension Medication in the Mlandingan Community Health Center Work Area, Situbondo.

The results of the study showed that there was a relationship between perceived severity and the level of compliance with diet & medication ($p=0.005$). This means that a positive

perception of severity can make changes in good compliance behavior in respondents to dieting & taking medication, this is in accordance with the opinion expressed by Rogers in the book Health Behavior and Health Education which states that the severity felt by a person will influence the individual's intentions. in behavior, because a person's actions to prevent the emergence of a disease are driven by the threat posed (Glanz et al., 2015). In line with research (Maurida et al, 2019) which states that there is a relationship between women's perceptions about the severity of cervical cancer and the regularity of early detection of cervical cancer ($P=0.000$) (Maurida et al., 2019), there is a need for an intervention to increase perceptions about the severity of cervical cancer so that women can prevent cervical cancer with regular early detection. Meanwhile research (Rusyani et al., 2021) stated the opposite, that there was no relationship between the perception of the seriousness of preventing COVID-19 and preventive behavior ($P=0.816$), this research does not prove that individuals who feel threatened by a disease will practice preventive behavior, this is thought to be due to other factors such as economic pressures.

3. The Relationship between Perceived Benefits and Diet Compliance & Taking Hypertension Medication in the Mlandingan Community Health Center Work Area, Situbondo.

The results of the research show that there is a relationship between perceived benefits and adherence to diet & taking medication ($p=0.017$), which means that a positive perception of benefits can influence high adherence to diet & taking medication in respondents, conversely if the respondent's perception of benefits is negative then the respondent's adherence to diet & taking medication is classified as moderate, this is in line with research (Narsih & Hikmawati, 2020) which states that there is an influence between the perception of benefits on the anemia prevention behavior of adolescent girls ($P=0.000$), because the higher the perceived benefits, the higher the prevention behavior towards anemia. But research (Febriani, 2019) stated on the contrary that there was no relationship between perceived benefits and treatment seeking behavior ($P=0.706$). This was because many respondents thought that by not taking treatment the symptoms of the illness they experienced could heal by themselves. According to the theory expressed by Glanz et al, acceptance of a person's perceived vulnerability to a condition is believed to lead to seriousness/severity, which will encourage a person to produce a force that supports behavior change. (Glanz et al., 2015). This depends on a person's perception of the effectiveness of the various efforts made in reducing the severity/threat of a disease or the perceived benefits of taking these health actions. In line with this theory, respondents with high perceived benefits should have good need fulfillment behavior (Hupunau, 2019).

4. The Relationship between Perceived Barriers to Diet Compliance & Taking Hypertension Medication in the Mlandingan Community Health Center Working Area, Situbondo.

The results of the research data above show that although there is no relationship between perceived barriers to the level of adherence to diet & taking medication among respondents, it appears that respondents with negative perception of barriers have more high adherence to diet & medication than moderate adherence. The researcher's opinion is that there are still respondents who have compliance with diet & taking medication while respondents with negative perceptions are due to the discovery of more negative perceptions of respondents' vulnerability. This can affect respondents' compliance with diet & taking medication. The researcher's opinion is in accordance with research conducted by Rambuhari Hupunau which states that the higher the perception of vulnerability, perception of

severity, perception of benefits, cues to action and self-confidence, the lower the perceived barriers because there are more benefits than losses.(Hupunau, 2019).

5. Relationship of Action Signals to Diet Compliance & Taking Hypertension Medication in the Mlandingan Community Health Center Working Area, Situbondo

The results of the study showed that there was a relationship between the perception of cues to action and respondents' diet compliance & medication taking ($p=0.019$). This is in line with research (Nugroho & Kusumaningrum 2018) which states that the factors that cause routine informants to carry out CVT include the many action signals that informants are exposed to by peers in their community.(Nugroho & Kusumaningrum, 2018). Based on the health belief model theory, it is explained that to change health behavior, other factors are needed in the form of triggers or signals so that individuals take action(Glanz et al., 2015). Cues can be in the form of external or internal factors, such as information in the mass media, advice or recommendations from friends or family members, socio-demographic aspects such as educational background, living environment, parental care and supervision, relationships, religion, ethnicity, economic, social and cultural conditions.(Hupunau, 2019).

6. The Relationship between Self-Efficacy and Diet Compliance & Taking Hypertension Medication in the Mlandingan Community Health Center Work Area, Situbondo.

Self-efficacy is an individual's belief regarding his ability and willingness to carry out an action(Pranita Milyarona, 2021). The results of the study showed that there was a relationship between self-efficacy (cell efficacy) and respondents' diet and medication compliance ($p=0.021$). This means that self-efficacy has an influence on respondents' compliance with dieting and taking medication. This is in line with research(Widyaningtyas et al., 2020)which states that there is a relationship between self-efficacy and treatment compliance in tuberculosis patients, where the better the self-efficacy, the higher the level of compliance. But research(Tantri et al., 2018)stated on the contrary that there was no relationship between self-efficacy and the smoking behavior of adolescent boys ($P=0.734$), because the dangers of smoking were not something new to them and were clearly displayed on each cigarette package. Meanwhile, self-efficacy influences how much effort a person makes when trying something new in overcoming problems that arise.

7. The most dominant relationship between perceived severity, perceived benefits, cues to action and self-efficacy on diet compliance and taking medication in hypertension sufferers.

The results of the research show that of the four independent variables (perceived severity, perceived benefits, cues to action and self-efficacy) which were measured against the dependent variable (adherence to diet & taking medication) there is only one independent variable that has the most dominant relationship to the dependent variable, namely perception severity. This can be seen from the value $OR=21.757$ which is higher than other independent variables, perceived benefits ($OR=7.064$), cues to action ($OR=4.885$) and self-efficacy ($OR=1.992$). This is because the higher an individual's perception of the severity of a disease, the more likely it is to behave healthily. In line with research(Lismiana & Indarjo, 2021)which states that the perception of poor seriousness is influenced by the respondent's perception of the low impact of treatment. Poor perception of seriousness causes non-compliant behavior in treatment.

D. Conclusion

From research that has been conducted, researchers found 4 variables that are related to diet compliance & taking hypertension medication, namely perceived severity, perceived benefits, cues to action and self-efficacy. However, there are 2 variables that are not related to diet compliance & taking hypertension medication, namely perceived vulnerability and perceived barriers. Apart from that, of the 4 related variables, only the perception of severity variable has the most dominant relationship to diet compliance & taking hypertension medication.

Suggestions from researchers It is hoped that the Community Health Center will provide more health education regarding the public's mindset and perception of the importance of maintaining a healthy lifestyle and controlling blood pressure regularly. Apart from that, future researchers will provide the latest interventions such as audio-visual to increase respondents' compliance in undergoing hypertension therapy.

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