

# The Compliance of Hypertensive Patients in Health Center Pengasih I Kulon Progo

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**Abstract**—Hypertension is a condition where blood vessels have persistent high blood pressure. Compliance is a behavior to adhere to doctor's advice about using medicine. The purpose of this study is to determine the compliance, the use of antihypertensive and the relationship between characteristics of patients with their adherence in hypertensive patients in health center Pengasih I Kulon Progo period September-October 2018.

This study used an observational analytic method with prospective cross-sectional approach. The inclusion criteria were male and female who hypertensive outpatients, aged 17-85 years old. Otherwise, the exclusion criteria were patient who had unconscious or mental disorders, complications of diabetes or coronary heart disease, gestational disease and using treatment for less than 3 months. Respondents will be given a MARS questionnaire. Data were analyzed statistically by SPSS using the Chi-square test with a confidence level of 95%.

The results showed that 35 patient who compliance (36%) and 62 patient who non-compliance (64%). Hypertension drug treatment that used were Captopril 65 patients (67%) and combination of Captopril and Amlodipine 32 patients (33%). The respondent's characteristics were obtained by female sex (73%), age range <55 years (42%), not working (32%), education level  $\leq$  high school 94 patients (97%), and long suffering from hypertension <5 years (22%). Result from Chi Square test obtained that the value of  $p$  value > 0.05 which means there was no significant relationship between characteristics and compliance in the use of treatment for hypertension.

Based on the results of the study, it can be concluded that 36% of patients adhere to taking drugs, and antihypertensive drug treatment which used are captopril and combination of captopril-amlodipine. There is no relationship between the characteristics of respondents and the adherence to their treatment.

**Keywords**— *hypertension, compliance, health center, MARS*

## I. INTRODUCTION

Hypertension was the most common condition in primary care. Hypertension according to the World Health Organization (WHO) was a condition where blood vessels have high blood pressure (systolic blood pressure  $\geq$  140 mmHg or diastolic blood pressure  $\geq$  90 mmHg) that persists. Blood pressure was the power of the blood to fight the pressure of the arterial wall when the blood was pumped by

the heart throughout the body. The higher the blood pressure made the heart working harder [1]

According to the Eighth Joint National Committee (JNC 8) report, Hypertension in patient  $\geq$  60 year-old if blood pressure  $\geq$  150/90 mmHg,  $\leq$  60 year-old if blood pressure  $\geq$  140/90 mmHg, patients with chronic renal failure and diabetes have the same blood pressure if  $\geq$  140/90 mmHg [2]

In people over 50 years, systolic blood pressure greater than 140 mmHg have more risk of cardiovascular disease when compared to diastolic blood pressure, but in 2008 there were about 40% of adults worldwide aged over 25 years diagnosed with hypertension. The incidence of hypertension is increasing, from around 600 million in 1980 to 1 billion in 2008 [1]. The latest statistical data states that there were 24.7% of the population of Southeast Asia and 23.3% of Indonesia's population aged over 18 years has hypertension in 2014 [3].

Hypertension treatment including ACE inhibitor drugs (captopril, lisinopril), Angiotensin Receptor Blockers (candesartan, losartan, valsartan),  $\beta$ -Blockers (atenolol, metoprolol) and Calcium Channel Blockers (amlodipine, diltiazem) were expected to reduce blood pressure [2]. The success of patients in treatment of hypertensive patients that affect the healing process. One of the success factors of healing is compliance of patients in taking medication. Many patients who do not comply regularly take the drug. As many as 50% of patients with hypertension do not adhere to the advice of health workers to consume hypertension drugs so that their blood pressure is not controlled [4].

Based on the research of Mubin et al. found that gender and occupational factors did not show a significant relationship with motivation for routine blood pressure control [5]. However, in a study conducted by Alponche was demonstrate that gender had a significant correlation with adherence to hypertension treatment [6] and the research conducted by Cho had a relationship with medication adherence to hypertensive patients [7]. This also proves that other factors such as complications of other diseases, the number of drugs used, the duration of treatment therapy will also affect the results of treatment compliance of hypertensive patients. So that researchers feel interested in re-examining these factors.

**II. RESEARCH METHODS**

*A. Sample*

The sample used was hypertensive patients who were undergoing therapy at health center Pengasih I Kulon Progo Affordable samples during September - October with the following criteria: male and female outpatient hypertension patients at health center Pengasih I Kulon Progo patients aged 17-85 years with exclusion that patient was unconscious or mental disorders, complications of diabetes or coronary heart disease, gestational disease and treatment for less than 3 months.

*B. tool*

The tool used in this study is in the form of a MARS questionnaire.

*C. Research procedure*

*1) Preparation: proposal and research permit:*

- Faculty of Pharmacy Ahmad Dahlan University
- Committee Ethics Ahmad Dahlan University (ethical approval number 01180303)
- Licensing Agency of Kulon Progo Regency
- Kulon Progo District Health Office

*2) Implementation Phase / Research: visit the health center Pengasih I Kulon Progo and disseminate it questionnaire to patients who visit installation pharmacy*

*3) Phase Data Processing / Data analysis: Collecting and analyzing the data obtained, the results obtained, conclusion*

*D. Data analysis*

Data scoring was seen based on the MARS (Medication Adherence Rating Scale) questionnaire, then described as a percentage. The category changes to non-compliance (score <25) and compliance category (score 25). Bivariate analysis is an analysis carried out on two variables that are allegedly related or correlated [8]. The analysis has used chi-square because this study uses categorical data. The type of associative hypothesis or relationship with ordinal and nominal measurement scales and calculation of Confidence Interval (CI) used 95% with significance level with an error value of 5%. If the Chi-Square test conditions are not found, ie, when the expected count value is less than 5 and not more than 20%, an alternative test was the Fisher test.

Validity test of MARS questionnaire had done by Pearson's correlation method which correlates between the scores of each question item with a total score. The minimum validity value that is considered to meet the requirements is if the value of Pearson's correlation coefficient (r count) is not less than 0.444. The results of the tests that have been carried out obtained the value of r count for each question on the questionnaire more than 0.444. This shows that all questions are considered valid The results of this validity test show that the value of Pearson's correlation coefficient (r count) on each question > 0.444, it can be concluded that the MARS questionnaire is considered valid in hypertensive patients [9].

The reliability test results are getting better if the value of Cronbach's alpha is getting high. The questionnaire was stated to be reliable if it had a Cronbach's alpha value of more than 0.6. The Cronbach's alpha test value from the MARS

questionnaire in this study amounted to 0.741 which showed that the primary data obtained was reliable data[9]. The results of validity and reliability tests on the MARS questionnaire state that the questionnaire can be used as an instrument to measure the compliance of hypertensive patients.

**III. RESULTS AND DISCUSSION**

The level of compliance to treatment in patients with hypertension in treatment at the health center first compassionate using MARS seen in Table I. It is known that the frequency of compliance treatment in hypertensive patients at health center Pengasih I Kulon Progo is known that from 97 respondents, there are 35 respondents (36%) were compliance in undergoing treatment and 62 respondents (64%) did not compliance to treatment. Based on the results of interviews with respondents found that the patient forgot to take medication because there were activities and busy activities.

TABLE I. COMPLIANCE LEVEL OF HYPERTENSIVE PATIENTS AT HEALTH CENTER PENGASIH I KULON PROGO

Compliance level	Total (N)	%
Compliance	35	36%
Not Compliance	62	64%
Total Respondents	97	100%

*A. Analysis of the relationship between patient characteristics and compliance*

The dependent variable in this study is the level of compliance in undergoing treatment measured by using the MARS ( Medication Adherence Rating Scale ) method with 5 items of questions and final assessment into 2 categories with conditions: obedient = 25 and non-compliance <25.

TABLE II. CHI-SQUARE TEST RESULTS OF THE RELATIONSHIP BETWEEN GENDER AND COMPLIANCE TO HYPERTENSION TREATMENT AT HEALTH CENTER PENGASIH I KULON PROGO

Gender	Compliance Level				Total		P-Value
	Not compliance		Compliance				
	n	%	n	%	N	%	
Man	18	69.2	8	30.8	26	100	0.510
Women	44	62	27	38	71	100	

Based on Table II the analysis of the relationship between sex and compliance in undergoing hypertension treatment, it was found that of the 26 male respondents who did not compliance with hypertension treatment, there were 18 respondents (69.2%) and those who compliance hypertension treatment was 8 respondent (30.8%). While from 71 respondents female of 44 respondents (62%) were declared non- compliance in undergoing treatment for hypertension and 27 respondents (38%) were compliance. In addition, the results of the Chi-Square test obtained a value of p = 0.510 (p> 0.05) which means that there was no relationship between sex and compliance to hypertension treatment at health center Pengasih I Kulon Progo. Gender influences the occurrence of hypertension. Men have a risk of about 2.3 times more increased systolic blood pressure compared to women because men are thought to have a lifestyle that tends to increase blood pressure. However, after entering menopause, the prevalence

of hypertension in women increases [10]. This research is in accordance with the research conducted by Puspita which shows that there was no relationship between gender and compliance to drug use in hypertensive patients ( $p = 0.366$ ). It is meaning that both female and male respondents both have the same awareness to comply with the use of hypertension drugs [11].

**TABLE III.** CHI-SQUARE TEST RESULTS OF THE RELATIONSHIP BETWEEN THE LEVEL OF EDUCATION AND COMPLIANCE IN UNDERGOING TREATMENT FOR HYPERTENSION AT HEALTH CENTER PENGASIH I KULON PROGO

last education	Level of compliance				Total		P-value
	Not compliance		Compliance		N	%	
	n	%	n	%			
≤ High School	60	63.8	34	36.2	94	100	0.920
> High school	2	66.7	1	33.3	3	100	

Based on Table III the analysis of the relationship between Level of Education with compliance, it was found that out of 94 respondents with low education that 60 respondents (63.8%) were not compliance to undergoing treatment and 34 respondents (36.2%) where compliance is undergoing treatment hypertension. While from 3 respondents with a high level of education, 2 respondents (66.7%) stated that they were non-compliance and 1 respondent (33.3%) compliance in undergoing treatment. Chi-Square test results were obtained that  $p\text{-value} = 0.920$  ( $p > 0.05$ ) which means that there was no relationship between the level of education and compliance in undergoing treatment for hypertension at health center Pengasih I Kulon Progo. Differences in education levels, both directly and indirectly, will influence the mindset of viewpoints and information received on treatment by hypertensive patients [12]. This study was consistent with the research conducted by Srikartika which shows that there was no relationship between education level and compliance with drug use in hypertensive patients with a value of  $p = 0.259$ . The result indicating that respondents with low levels of education are at risk of not compliance to treatment, non-compliance with respondents with low education can be caused due to the lack of knowledge they have [13]. Education was very closely related to knowledge and with the knowledge gained, patients will find out the benefits of advice or advice from health workers so that they will be motivated to be more obedient to undergoing treatment recommended by health workers.

**TABLE IV.** CHI-SQUARE TEST RESULTS FROM THE RELATIONSHIP BETWEEN OCCUPATION AND COMPLIANCE IN UNDERGOING HYPERTENSION TREATMENT AT HEALTH CENTER PENGASIH I KULON PROGO

Work	Compliance Level				Total		P-value
	Not compliance		compliance		n	%	
	n	%	n	%			
Does not work	20	64.5	11	35.5	31	100	0.933
Work	42	63.6	24	36.4	66	100	

Based on Table IV the results of the analysis of the relationship between occupation and compliance in undergoing hypertension treatment, it was found that of the 31

respondents who did not work, there are 20 respondents (64.5%) were not compliance and 11 respondents (35.5%) were compliance to drug treatment. Whereas 66 respondents who worked found that 42 respondents (63.6%) were declared non-compliant and 24 respondents (36.4%) were compliance in running treatment. Chi-Square test results were obtained that  $p\text{-value} = 0.933$  ( $p > 0.05$ ) which means that there was no relationship between the type of work and compliance in undergoing treatment for hypertension at health center Pengasih I Kulon Progo.

Some social aspects that affect a person's health status, among others are age, sex, occupation and socio-economic, meaning that the four social aspects can influence the health status of the respondent, one of them was adherence to taking hypertension medication [14]. With the number of respondents working quite high in number, this is likely because respondents who are still actively working have a probability of forgetting to take drugs higher when compared to respondents who are not actively working, the content is in line with the research conducted by Lee states that the activity or activity of an individual is a variable that can be a trigger in skipping a medication schedule so that the treatment target is not achieved [15].

**TABLE V.** CHI-SQUARE TEST RESULTS RELATIONSHIP BETWEEN LONG-SUFFERING OF DISEASE AND COMPLIANCE IN UNDERGOING HYPERTENSION TREATMENT AT HEALTH CENTER PENGASIH I KULON PROGO

Long suffered of disease	Level of compliance				Total		P-value
	Not compliance		Compliance		n	%	
	n	%	n	%			
<5 years	11	52.4	10	47.6	21	100	0.214
≥ 5 years	51	67.1	25	32.9	76	100	

Based on Table V the results of the analysis relationship between the old suffering disease and compliance in undergoing hypertension treatment, it was found that 21 respondents suffering from hypertension <5 years that 11 respondents (52%) did not compliance with hypertension treatment and 10 respondents (47.6%) compliance in undergoing treatment. While from 76 respondents who had suffered hypertension ≥ 5 years that 51 respondents (67.1%) were declared not compliance and 25 respondents (32.9) were compliance in undergoing treatment for hypertension. Based on the Chi-Square test results in the table regarding the relationship between the duration of suffering from hypertension and adherence in undergoing treatment,  $p\text{-value} = 0.214$  ( $p > 0.05$ ) means that there is no relationship between the duration of hypertension and compliance to hypertension treatment.

This study is in accordance with the research conducted by Lulebo which states that there was no relationship between the duration of suffering from a disease and one's compliance [16]. In general, the longer a person suffers from an illness, the more he will understand the illness, but different results are found, namely the longer the duration of a person suffering from an illness will be a trigger factor for a person to become bored with treatment and reduce compliance is undergoing therapy.

TABLE VI. CHI-SQUARE TEST RESULTS FROM THE RELATIONSHIP BETWEEN AGE AND COMPLIANCE IN UNDERGOING HYPERTENSION TREATMENT AT HEALTH CENTER PENGASIH I KULON PROGO

Age	Compliance Level				Total		P value
	Not compliance		compliance		F	%	
	f	%	f	%			
<55 years	24	58,5	17	41.5	41	100	0.345
≥ 55 years	38	67.9	18	32.1	56	100	

Based on Table VI the analysis of the relationship between age and compliance in undergoing hypertension treatment, it was found that from 41 respondents who <55 years there are 24 respondents (58.5%) were not compliance to undergoing treatment and 17 respondents (41.5%) were compliance undergo treatment. Whereas from 56 respondents aged ≥ 55 years that 38 respondents (67.9%) were stated to be not compliance and 18 respondents (32.1%) were compliance in undergoing treatment for hypertension. Based on the results of the Chi-Square test regarding the relationship between the age of hypertensive patients with compliance to undergoing hypertension treatment, the p-value = 0.345 ( $p > 0.05$ ) means that there is no relationship between age with compliance. Age affects the occurrence of hypertension. With increasing age, the risk of developing hypertension becomes greater. In old age, hypertension is mainly found only in the form of increased systolic blood pressure. This event is caused by structural changes in large blood vessels [10]. This study is in accordance with the research conducted by Sinuraya et al in hypertensive patients at first-rate health facilities in Bandung, the results of the analysis showed that there was no significant relationship between age and level of adherence and age of a person [17].

This study concluded that 36% of patients adhere to taking drugs. Antihypertensive drugs used are captopril and combination of captopril-amlodipine. There is no relationship between the characteristics of respondents and the adherence to their treatment. This may be due to the limitations of the study where the number of characteristics was not proportional in 2 groups and the total sample was only 100 patients. The role of the pharmacist in the health center services was needed to improve patient adherence to treatment.

**IV. CONCLUSION**

1) Compliance with drug use in hypertensive patients at health center Pengasih I Kulon Progo in the period of September - October 2018 show that the compliance 35 (36%) patients and non- compliance 62 (64%) patients.

2) The drugs used to treat hypertension at the health center Pengasih I Kulon Progo was Captopril (67%) and combination Captopril-Amlodipin (33%).

3) According to the respondents characteristic (age, sex, occupation duration of suffering, education), the Chi-Square

test result obtained that P-value >0.05 means that there is no significant relationship with characteristic and compliances.

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