

CORRELATION BETWEEN DURATION OF HYPERTENSION AND LEVEL OF ADHERENCE TO HYPERTENSIVE

Rizqi Suryani Putri, Henry Mulyono

Internship Doctor of Balowerti Public Health Center Kediri, Indonesia

Email: rizqisuryaniputri@gmail.com, henrymulyonobalowerti@gmail.com

Abstract

Hypertension is a major cause of premature death worldwide. 16,95% citizen were diagnosed with hypertension and Balowerti area had the highest cases in Kediri City. The adherence to antihypertensive medications is a key component to control blood pressure levels. Poor adherence to these medications leads to the development of hypertensive complications and increase risk of cardiovascular events which in turn reduces the ultimate clinical outcome. Duration of hypertension status is one of the factors that affect the level of adherence. Previously, there were several similar studies with varying results. This study is needed to give early intervention to reduce complications and patient mortality. Aim: This study aims to find the correlation between the duration of hypertension and the level of adherence to antihypertensive medication in Balowerti Public Health Center Kediri. A cross-sectional study was carried out to 106 patients with hypertension in the work area of Balowerti Public Health Center, Kediri, East Java, Indonesia using accidental sampling. Morisky Medication Adherence Scale (MMAS-8) questionnaire was used to measure the level of adherence to antihypertensive medication. Data were analysed with the Spearman correlation test. Results: This study showed a significant correlation between the duration of hypertension and the level of adherence to antihypertensive medication ($p = 0.011$, $p < 0,05$). Duration of hypertension was significantly correlated with the level of adherence to antihypertensive medication. The longer duration of hypertension, the lower level of adherence to antihypertensive medication.

Keywords: hypertension; adherence to medication; antihypertensive medication; MMAS-8

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Introduction

Hypertension is a non-infectious disease caused by impaired heart and blood vessel function (Kemenkes, 2014b). Hypertension is a condition in which systolic arterial blood pressure raised more than or equal to 140 mmHg, diastolic pressure raised more than or equal to 90 mmHg, or both (Kemenkes, 2014a). Hypertension is a serious medical condition and can increase the risk of heart, brain, kidney and other diseases. It is a major cause of premature death worldwide (WHO, 2018). Early death and disability

due to hypertension can be prevented but unfortunately only few patients realized that they had hypertension. Only around 46.5% of people with hypertension in the world are aware of their disease. Around 36.9% of hypertension patients took medication, and only 13.8% of them had stable and controlled blood pressure (Forouzanfar MH, Afshin A, Alexander LT, Anderson HR, Bhutta ZA, Biryukov S, Brauer M, Burnett R, Cercy K, Charlson FJ, 2016) (Forouzanfar MH, Afshin A, Alexander LT, Anderson HR, Bhutta ZA, Biryukov S, Brauer M, Burnett R, Cercy K, Charlson FJ, 2016).

Based on the data of *Indonesia Basic Health Research* (IBHR) in 2013, 1 in 4 people suffer from hypertension in Indonesia. the prevalence of hypertension increases with age. From 14.7% in the 25-34 years age group, increase to 24.8% in the 35-44 year age group and become 57.6% in the group of 65 year age above. The prevalence in women (28.8%) was higher than in men (22.8%) (Kesehatan, 2013).

According to the health profile of the City of Kediri in 2015, 16.95% people in the City of Kediri were diagnosed with hypertension and Balowerti Public Health Center Kediri had the highest cases of hypertension patients, which was around 52.68% (Kediri, 2015). Based on patient visit data from January-September 2017, 1248 people were diagnosed with hypertension at the Balowerti Public Health Center Kediri and hypertension became number one cases in Balowerti Public Health Center Kediri (Balowerti, 2015).

The adherence to hypertension treatment is very important in order to achieve stable blood pressure. Poor adherence to these medications leads to the development of hypertensive complications and increase risk of cardiovascular events which in turn reduces the ultimate clinical outcome. Several things that affect the level of adherence of patients with hypertension are the duration of hypertension, level of knowledge about hypertension, motivation, treatment, family support (Rasajati, Raharjo, & Ningrum, 2015) (Ekarini, 2012).

Previously, there were several similar studies with varying results. Duration of hypertension is reported to be significantly correlated with the adherence to medication (Puspita, 2016). Therefore, this study aims to investigate the correlation between the duration of hypertension and level of adherence to hypertensive medication in hypertension patients give early intervention to reduce complications and patient mortality.

Method

A cross-sectional study was carried out from February to June 2018. 106 hypertension patients at Balowerti Public Health Center Kediri were included using accidental sampling for analysis. The subjects in this study were patients with hypertension treated at Balowerti Public Health Center. The inclusion criteria were outpatients aged more than 40 years old, had received hypertension diagnosis from doctor, had no complication yet, consumed antihypertensive drug prescribed by a doctor, and had given consent to participate in the study. The exclusion criteria were the subject who live outside Balowerti area, patients who bought their own medication

without a doctor's prescription, patients who could not communicate well and patients who refused to be involved. This study used the Modified Morisky Adherence Scale (MMAS-8) questionnaire to measure the adherence to hypertensive medication. The total score of the 8 questions on MMAS-8 was compared with adherence scoring and classified into three categories as low, medium and high adherence rate. The collected data were analysed for data cleaning, coding, and tabulation. Data analysis was performed using IBM SPSS Statistics for Windows version 25.0. (IBM Corp., Armonk, NY, USA). The research used was univariate and bivariate. Univariate data is presented in a frequency distribution, while the bivariate analysis used in this study used the Spearman correlation test. Data distribution was evaluated using a one-sample Kolmogorov-Smirnov test. Variables with a p-value < 0.05 from the bivariate analysis were considered significant.

Results and Discussions

A. Characteristic of Hypertension Patients at Balowerti Public Health Center Kediri

Among 106 hypertension patients, most of the respondents were in the age above 65 years (51 %, n=54). The sex ratio of women is 84 % while men is 16%. Eighty four (79.2%) of hypertension patients were unemployed and most of the patients graduated from elementary school (25.5 %, n=30). The detailed characteristics of the respondents can be seen in Table 1.

Table 1
Characteristic of Hypertension Patients at Balowerti Public Health Center Kediri

Characteristics	Total (n=106)	Percentage (%)
Age		
36 - 45	5	4.7
46 - 55	11	10.4
56 - 65	36	33.9
> 65	54	51.0
Total	106	100
Gender		
Male	17	16
Female	89	84
Total	106	100
Job		
Unemployed	84	79.2
employed	22	20.8
Total	106	100
Education		
No formal school	3	3
Elementary School	30	25.5
Junior High School	23	21.7
Senior High School	18	17
College	5	4.7
Total	106	100

B. Duration of Hypertension in Hypertension Patients

Table 2
Duration of Hypertension in Hypertension Patients at Balowerti Public Health Center

Duration of HD (months)	Total (n=52)	Percentage (%)
≤ 5 years	55	51.9
> 5 years	51	48.1
Total	106	100

C. Prevalence of Adherence Level of Hypertensive Medication

Table 3
Adherence Level of Hypertensive Medication in Hypertension Patients at Balowerti Public Health Center Kediri

Level of Adherence	Total (n=52)	Percentage (%)
Low Adherence	53	50.0
Medium Adherence	39	36.8
High Adherence	14	13.2
Total	106	100

Our findings indicated that out of 106 participants, fifty three patients (50 %) were classified into low adherence category, thirty nine (36.8 %) were classified into medium adherence, and fourteen patients (13.2%) were classified into high adherence category.

D. Correlation Between Duration of Hypertension and Adherence Level of Hypertensive Medication

The Spearman correlation test showed a significant correlation between the duration of hypertension and the level of adherence to hypertensive medication ($p = 0.011$, $p < 0,05$, correlation coefficient -0.245). This study revealed that most of the respondents with low adherence to hypertensive medication have known about their hypertension status were more than 5 years while most of the respondents with high adherence to hypertensive medication have known about their hypertension status were less than 5 years. The cross-tabulation between the duration of depression was presented in Table 4

Table 4
Bivariate Analysis between Duration of Hypertension and Level of Adherence to Hypertensive Medication in Hypertension Patients at Balowerti Public Health Center Kediri

		Level of Adherence						Total	p-value	
		Low		Medium		High				
		n	%	n	%	n	%			N
Duration of Hypertension (year)	≤ 5 years	20	18.9	26	24.5	9	8.5	55	51.9	$p = 0.011$
	> 5 years	33	31.1	13	12.3	5	4.7	51	48.1	
Total		53	50	39	36.8	14	13.2	106	100	

Hypertension patients were analyzed based on several characteristics. Based on table 1 presented on the previous chapter, the prevalence of hypertension increases with age. This happens because the blood vessel structure and function change with aging, which in turn affects body hemodynamic or blood pressure regulation (Cannoletta & Cagnacci, 2014). It showed that more than half of the patients were above 65 years old. This result is in line with the data from the IBHR 2013 stating that the most common disease in the elderly is hypertension (57.6%). When a person is getting older, his or her incidence of having a high blood pressure is expected to increase (Kesehatan, 2013).

Eighty nine women (84%) with hypertension participated as the respondents, which is far greater than men (n=17, 16%). This is in accordance with the results of the IBHR 2013 that the prevalence of hypertension increases with the age of the patient and women had more hypertension cases than men (Kesehatan, 2013). Menopause, which involves hormonal changes, resulting in a decreased ratio of estrogen to androgen hormones in women's body. This condition leads to higher renin release which then triggers an increase in blood pressure (Cannoletta & Cagnacci, 2014).

79.2% of the patients were unemployed. The high rates of hypertension among unemployed patients is that the physical activities of unemployed patients are less than those who work. Physical activities can facilitate blood flow while the lack of physical activities can increase the risk of obesity and hypertension (Diaz & Shimbo, 2013).

Education had no significant association with incidence of hypertension (Rasajati et al., 2015). A result presented in table 1, that even most of the hypertension patients were graduated from elementary school (25.5%, n=30) and the prevalence of hypertension were decreased in the group who had higher level of education, but only three hypertension patients (3%) had no formal education. There are other significant factors that play a role in the incidence of hypertension such as genetic and lifestyle (WHO, 2018).

Out of 106 respondents of hypertension patients at Balowerti Public Health Center Kediri, the majority had low adherence to hypertensive medication. Besides duration of hypertension status, things that affect the level of adherence are self-motivation and family support (Rasajati et al., 2015) (Ekarini, 2012). It seemed that most of the patients have no adequate self-motivation or family support because the other member of the family lives in another city. Thus, this condition can affect the adherence level too.

Our analysis revealed a significant correlation between the duration of hypertension and the level of adherence to hypertensive medication ($p = 0.011$, $p < 0,05$). This is consistent with the result of Puspita's study in 2016, which in her study, 68.1% hypertension patients who were diagnosed with hypertension status more than 5 years had low adherence to medication (p value = 0.005) (Puspita, 2016). The patients took more than one type of drug when the hypertension status

more than 5 years. A previous study stated that patients with one drug regimen have a higher adherence level than patients with multiple drug regimens (Ramli, Ahmad, & Paraidathathu, 2012). This may be because patients who consume multiple drugs tend to forget to take their medicine and finally get tired of it, resulting in a lower adherence. According to Spearman correlation test, the correlation coefficient is -0.245. This result indicates a negative correlation which means the longer the duration of hypertension the lower the level adherence to hypertensive medication. It might cause burnout feeling by most of the patients and resulting in a lower adherence.

In contrast, a study reported no correlation between the duration of hypertension and the level of adherence to hypertensive medication (Suhadi, 2011). That study had a different results with this study, it might be caused by the different segmentation of the age segmentation of the subjects, which all the subjects in that study were above 65 years, while in this study the subjects had wider range of age, which were around 40-89 years old. The patients who were under 65 years seemed to have higher adherence to medication and mostly the duration of hypertension were 5 years old or less.

Conclusion

The majority of hypertension patients at Balowerti Public Health Center are over 65 years old, female, graduated from elementary high school, unemployed and have low adherence to antihypertensive medication. Based on the result presented, it was concluded that there was a significant correlation between the duration of hypertension and the level of adherence to hypertensive medication ($p = 0.011$, $p < 0,05$, correlation coefficient -0.245). The longer the duration of hypertension, the lower the level of adherence to hypertensive medication.

This study still has limitations. This study cannot control several factors that influence the adherence to medication, such as family support, financial support, marital status, knowledge, and self-motivation. Our findings suggested that further research about factors correlated with adherence to hypertensive medication are required. Thus, early intervention can be done to reduce complications and patient mortality

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