

The Relationship Between Knowledge and Medication Adherence in Hypertensive Patients: A Cross-Sectional Study in Gunung Putri Hospital Purwakarta

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ABSTRACT

Hypertension is a global health problem that can cause death or is commonly called the Silent Killer. According to Riskesdas 2013 and 2018, the prevalence of hypertension is relatively high, increasing 8.3% and 25.8% to 34.1%, respectively. Hypertension is found in 12.54% of the population in Purwakarta. The effectiveness of treatment determines the prevalence of hypertension. One of the primary factors contributing to effective treatment is medication adherence. Patients' knowledge of hypertension is a determinant of good compliance. The higher the knowledge, the higher the level of medication adherence. A patient's knowledge includes understanding the causes and symptoms of the disease and its effects if not taking medication correctly. This study aimed to investigate the relationship between hypertension knowledge and medication adherence in Gunung Putri Hospital Purwakarta. The method used in this study was a cross-sectional study using a hypertension knowledge questionnaire and the modified Morisky Medication Adherence Scale (MMAS-8). A consecutive sample was used as a sampling method that involved distributing the study questionnaire to hypertensive patients that fulfill the inclusion criteria. To measure the association between knowledge and medication adherence using the chi-square test. Out of the 206 respondents, 128 respondents (62.1%) have a good level of knowledge. One hundred and eighty-four respondents (89.3%) do not comply with medication. There was a positive correlation between knowledge and medication adherence in hypertensive patients in Gunung Putri Hospital Purwakarta ($p=0.009$).

Keywords: Hypertension, Knowledge, Medication adherence.

1. INTRODUCTION

Hypertension is still an important health problem. Based on WHO data, hypertension has killed 9,4 million world citizens every year,¹ in Southeast Asia, hypertension has killed almost 1,5 million population people.² The number of adult hypertensive patients based on WHO data over 18 years is about 22%.¹ Riskesdas 2018 shows that the age group of 25-44 years has the highest prevalence of 31.6%, followed by the age group of 25-34 years, 20.1%.³ The highest cases of hypertension are found in Africa (30%), while the lowest is in America (18%). The prevalence of hypertension in men (21%) is higher than in women (16%).¹ In Southeast Asia, the average prevalence of hypertension is 37%, the highest is found in Malaysia

at 38%, followed by Singapore (34.6%), Brunei Darussalam (34.4%), and Thailand (34.2%).⁴ Prevalence of hypertension in Indonesia based on Riskesdas data in 2018 is 34.1%.² This result shows a significant increase compared to the 2013 Riskesdas data of 25.8%.⁵ Riskesdas 2018 shows that the province with the highest prevalence is in the South Kalimantan area, which is around 44.13%, followed by West Java at 39.6%, East Kalimantan at 39.3%. For the provinces with the lowest prevalence of hypertension, namely Papua at 22.2%, North Maluku at 24.65%, and West Sumatra at 25.16%.⁶ West Java Province includes areas with a reasonably high prevalence rate of 18.55%, based on the health profile of West Java

province in 2018 as many as 1,362,032 people. The highest prevalence of hypertension was in Majalengka Regency (46.84%), Bandung Regency (34.38%), Bogor Regency (12.10%), and Purwakarta Regency (12.54%).⁷

Medication non-adherence or suboptimal adherence is a well-recognized contributor of uncontrolled hypertension.⁸ Suboptimal adherence includes failure to initiate pharmacotherapy, to take medications as often as prescribed, and to persist on therapy long-term.⁸ Some data showed that adherence to hypertension medication is still relatively low. Kang et al. (2020) concluded that poor adherence is almost 50% in an Asian population with hypertension.⁹ Oori et al. (2019) showed the overall prevalence of medication adherence in patients with hypertension in Iran is 33%.¹⁰ Meanwhile, The 2018 Basic Health Research (Riskesdas) data showed that adherence to hypertension medication for Indonesians over 18 is 54.4%.⁶

In the study by Mathavan et al., one important factor that influenced medication adherence is the knowledge factor. The higher the knowledge, the higher the level of medication adherence.¹¹ The results concluded that 52% of patients had a low level of knowledge about hypertension, and 70% of those patients had a low adherence rate.¹¹ To ensure treatment success, patients must know about the causes and symptoms of the disease and its effects if they do not take medication correctly.¹² Based on these problems, researchers are interested in investigating the relationship between knowledge and medication adherence in hypertensive patients at Hospital Gunung Putri Purwakarta.

2. RESEARCH METHODS

This cross-sectional analytics study was conducted on 206 hypertensive patients at Gunung Putri Hospital, Purwakarta. Data were collected from January 2021 through April 2021. The researcher consecutively selected eligible patients who informed them of the study objectives and recruited all patients who agreed to participate. All the study participants gave informed consent.

The inclusion criteria were as follows: 1) Hypertensive patients who are taking medication, and 2) Willing to be a respondent. The exclusion criteria were as follows: Not willing to be a respondent to the study.

The patients' knowledge was assessed using the Hypertension knowledge-level scale questionnaire. According to the answer distribution, the group was divided into three sub-groups depending on the score:

1. 16-20 points – high level of hypertension knowledge;
2. 12-15 points – moderate level of hypertension knowledge;
3. between <12 points – low level of hypertension knowledge.

Self-reported medication adherence was assessed using the modified Morisky Medication 8-item Adherence Scale (MMAS-8). The scores may range from 0 to 7, with 0-7, 8 reflecting non-adherent and adherent, respectively. The statistical significance of variables in the model was verified using chi-square-test. The limit of significance was set at *p-value* <0.05.

3. RESULTS

The sample of this study was 206 respondents, with the majority of respondents aged between 46 to 55 years (46.6%) and female (63.3%). Based on their occupation, most of them work as housewives (34.5%). Based on their educational background, the highest frequency of respondents has a high school education (59.7%). The highest percentage of respondents had suffered from hypertension between 1 to 10 years (57.8%), and almost all respondents only used 1 type of drug (98.5%).

Table 1. Characteristics of Respondents

Characteristics	Total (%) N=206
Age (Years)	-
16-25	15 (7.3)
26-35	8 (3.9)
36-45	17 (8.3)
46-55	96 (46.6)
56-65	38 (18.4)
66-75	25 (12.1)
76-85	7 (3.4)
Gender	-
Male	75 (36.4)
Female	131 (63.6)
Religion	-
Islam	204 (99.0)
Catholic	2 (1.0)
Christian	0 (0)
Buddhist	0 (0)
Hindu	0 (0)
Employment	-
Student	6 (2.9)
Civil Servant	5 (2.4)
TNI	17 (8.3)
Private	39 (18.9)
Self-employed	51 (24.8)
Daily Worker Freelance	8 (3.9)
Dentist	2 (1.0)

Teacher	2 (1.0)
Housewife	71 (34.5)
Retired	3 (1.5)
Farmer	2 (1.0)
Last Education	-
Elementary	33 (16.0)
Junior High School	24 (11.7)
Senior High School	123 (59.7)
Undergraduate	24 (11.7)
Unschoolled	2 (1,0)
Marital Status	-
Not	12 (5.8)
Married	173 (84.0)
Divorced	21 (10.2)
Income (Rupiah)	-
< 1,500,000	107 (51.9)
1,600,000 - 2,500,000	54 (26.2)
>2,500,000 - 3,500 .000	15 (7.3)
> 3,500,000	30 (14.6)
Duration of hypertension	-
< 1 year	52 (25.2)
1-10 years	119 (57.8)
> 10 years	35(17.0)
Number of drugs	-
1 drug	203 (98.5)
2 drugs	3 (1.5)

The following are the results related to hypertension knowledge at Gunung Putri Hospital, Purwakarta (Table 2). The study showed that 128 people (62.1%) had a high level of hypertension knowledge.

Table 2. Knowledge of Hypertension

Variable	Total (n=206)	Percentage (%)
Knowledge of hypertension		
High	128	62.1
Moderate	31	15.0
Low	47	22.8

The following are the results regarding medication adherence for hypertension patients at Gunung Putri Hospital Purwakarta (Table 3). The majority of respondents, as many as 184 people (89.3%), were non-adherent in taking hypertension medication.

Table 3. Level of medication adherence in hypertensive patients at Gunung Putri Purwakarta Hospital.

Variable	Total (n=206)	Percentage (%)
Adherent	22	10.7
Non-adherent	184	89.3

Table 4 showed that all respondents with a low level of knowledge are non-adherent with medication. Seventy-six of 78 respondents (97.4%), and 108 of 128 respondents (84,4%) from a moderate and high level of knowledge, respectively, were classified as non-adherent. The results showed a positive correlation between knowledge and medication adherence. Respondents with a high level of knowledge tend to be more adherent. The significance of differences is 0.009 (P <0.05). But the prevalence of medication adherence in respondents with a high level of knowledge is still low (15,6%).

Table 4. Relationship between knowledge and medication adherence in hypertensive patients at Gunung Putri Hospital Purwakarta

Knowledge of hypertension	Medication adherence		Total	p-value
	Adherent (%)	Non-adherent (%)		
High	20 (15.6)	108 (84.4)	128	0.009
Moderate	2 (6.5)	29 (93.5)	31	
Low	0 (0)	47 (100)	47	

4. DISCUSSION

Sixty-two percent of respondents in this study had a high level of knowledge of hypertension. Several studies showed similar results regarding knowledge. A study conducted by Indriana et al. showed that out of 79 respondents, 70 respondents (88.6%) had a good level of knowledge.¹³ Haldi et al. found from their study, 59% of the 76 respondents had good knowledge.¹⁴ In addition, in the research of Kassahun et al. in Ethiopia, out of 384 respondents, 56% had good knowledge.¹⁵ Gaili's study in the United Arab Emirates showed a higher number of respondents (91.7% of 385 respondents) with a high level of knowledge.¹⁶

Knowledge and education are considered crucial for proper hypertension management by affecting patient awareness and behaviors in hypertension management. Knowledge can be perceived through the experiences of the senses. People with higher educational backgrounds can learn more knowledge and information from many sources, such as television, radio, newspapers, etc.¹¹ The majority of respondents in this study were high school graduates. It correlates with study results that showed most of the respondents had a high level of hypertension knowledge. They should be aware that complications of hypertension could occur if not take medication correctly.

The higher a person's level of knowledge, the higher the level of adherence to taking medication. The study results showed that individuals with a high level of knowledge had lower levels of non-adherence than individuals with medium and low levels of compliance (84.4% vs. 93.5% vs. 100%). However, the results showed that the adherence rate to taking medication is still very low, even in individuals with a high level of knowledge (15.6%), even less in individuals with a medium and low level of knowledge (6.5%, 0%, respectively). This study was supported by Shi et al., which showed 63.6% of 420 respondents are non-adherent.¹⁷ Mathavan et al. found that 70% of 50 respondents were not adherent to taking hypertension medication.

Several factors besides education are associated with non-adherence or suboptimal medication adherence, such as the health care system, therapy-related factors, condition-related factors, and patient-related factors.⁸ The quality of the relationship between the patient and clinician, the communication style of the clinician, and the patient-centeredness of treatment decisions impact adherence.⁸ Patients that participate in decisions on what medications to take are more adherent than patients who are not engaged in the decision. Multiple medications combined with multiple daily doses are known as barriers to adherence. Fewer medications are consistently associated with better adherence and hypertension

control. Adults or elderly with hypertension often have multiple chronic conditions and polypharmacy, which may adversely affect medication adherence.

Forgetfulness is a common contributor to non-adherence medication. Some patients often forget to take medicine when traveling. Another reason is some patients with good knowledge didn't visit the physician regularly if they didn't feel any physical complaints regarding the disease. They discontinued the medication because they felt better. Many patients with hypertension do not understand that they have to take medication regularly to control their blood pressure. In the study of Shuangjiao et al., some respondents did not comply with taking medication, including respondents with low economic status.¹⁷ The transportation factor from the patient's residence to the health facility can affect patients visiting the physician to control the disease.¹⁹

5. CONCLUSION

There is a significant relationship between knowledge and medication adherence in hypertensive patients at Hospital Gunung Putri Purwakarta ($p=0.009$). Respondents with a high level of knowledge tend to be more obedient than respondents with a moderate and low level of knowledge. However, the overall prevalence of medication adherence still low. Several factors are associated with non-adherence medication, including the health care system, therapy-related factors, condition-related factors, and patient-related factors.

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