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RESEARCH ARTICLE

The correlation between knowledge, attitude and family support on compliance of outpatients with hypertension in a healthcare centre in Indonesia

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Abstract

Background: Hypertension is a silent killer disease in the community. The success of hypertension therapy is influenced by adherence to medication. Three factors that shape compliance behaviour are knowledge and attitudes (these are predisposing factors) and family support (as a reinforcing factor). The majority of people in Indonesia choose healthcare centers when seeking hypertension treatment. Non-adherence to treatment has an impact on the incidence of complications. **Objective**: This current study was conducted on outpatients in the Tanggulangin Primary Healthcare Centre, Sidoarjo, Indonesia. **Method**: This study used a correlational design and a cross-sectional approach, involving 72 people in the sample. The variables measured were: knowledge, attitudes of patients, family support as well as patient compliance with hypertension treatment. Data was collected through a questionnaire instrument. Data analysis was done descriptively and correlatively. **Results**: The most widely accepted hypertension drug was amlodipine 78.6%, and a single therapy was given to 86.1% of patients. Most patients had suffered from hypertension for less than one year (38.9%); and half of the patients had family members who suffered from hypertension (52.1%). Patient knowledge of hypertension was moderate (69.4%). Most of the patients had a positive attitude (83.3%), good family support (76.5%), however, 94.5% did not comply with medication. The Spearman Rho test showed compliance with treatment was influenced by knowledge (5.9%) and attitude (14.8%). Meanwhile, the family support variable had no effect on compliance. **Conclusion**: This study concludes patient compliance to hypertension medication in the Tanggulangin Primary Healthcare Centre is only influenced by patient knowledge and attitudes.

Introduction

Hypertension is a condition where systolic blood pressure rises to more than 140 mmHg and diastolic blood pressure to more than 90 mmHg with an interval of five minutes in a state of sufficient rest or calm according to two measurements (Dipiro *et al.,* 2017; Ministry of Health of the Republic of Indonesia, 2018). Increased blood pressure that lasts for a long time can cause several complications including damage to the kidneys, heart and brain. Complications can occur if hypertension is not detected early, and patients receive no adequate treatment (Vitahealth. 2006). The World Health Organization's (WHO) data showed that one billion people globally have hypertension, and the prevalence of hypertension is estimated to increase (WHO, 2021). It is predicted that approximately 29% of adults will suffer from hypertension worldwide by 2025 (WHO, 2021). Based on the Basic Health Research, the prevalence of hypertension in Indonesia was 30.9% and in East Java was 37.4% in 2017 (Ministry of Health RI, 2017).

Hypertension is treated with pharmacological and non-pharmacological therapy. In pharmacological therapy, there are several classes of drugs, namely angiotensin-converting enzyme inhibitors, calcium channel blockers, diuretics, beta-blockers, alpha-blockers, and angiotensin II and insulin receptor antagonists (Benowitz, 2012; Sweetman, 2009). Non-pharmacological therapy is carried out by implementing a healthy lifestyle. Both therapies are effective steps to treat hypertension (James *et al.,*

2014). The success of therapy in hypertensive patients is influenced by compliance with medication, especially the rules of drug use. Compliance with hypertension treatment is important because hypertension needs to be controlled to avoid complications. The WHO states that around 50 - 70% of patients did not adhere to using prescribed antihypertensive drugs (WHO, 2013).

According to Lawerns Green's theory, there are three factors shape health behaviour; They include predisposing factors, such as: age, occupation, education, knowledge and attitudes. Low knowledge of patients with hypertension occurs because they do not feel any complaints, and thus they neglect to seek for information about their health (Pramestutie & Silviana, 2016). Enabling factors include environmental aspects, i.e., the ease of reaching healthcare facilities, distance to health services and completeness of health facilities. In addition, reinforcing factors are manifested in family support and community leader support. Family support is the action and acceptance of the family towards people with hypertension, and it includes emotional support, information, appreciation, instrumental sources, and readiness to help if needed (Harahap, Aprilla, & Muliati, 2019).

Primary Healthcare is the foremost health service for the people in Indonesia, becoming a reference for people in the region to seek treatment. In the service of hypertensive patients, Primary Healthcare conducts examinations and administers drugs for a certain period of time. Hypertensive patients routinely do re-examinations and get medications to maintain a stable blood pressure condition. The patient's non-adherence to perform examinations and take prescribed drugs will lead to failure to achieve the therapeutic outcomes and have a greater detrimental impact on their health (Hanum *et al*., 2016). This study aimed to examine the influence of knowledge, attitude and family support on patient adherence to hypertension medications in a primary healthcare centre. It was conducted on outpatients in the Tanggulangin Primary Healthcare Center, Sidoarjo, Indonesia, where a large number of hypertension cases occur.

Methods

Design

The research used a descriptive-correlational design and a cross-sectional approach (Kearney *et al.*, 2005). The population of this study were patients with hypertension in the Tanggulangin Primary Healthcare Center, Sidoarjo Regency. The number of patients with hypertension in the health provider was 743 people in 2019, by using the Slovin formula, at a confidence level of 1%, the calculation of a sample size of 100 respondents was obtained (Bungin, 2010). The study was conducted in July - August 2021 because, during the COVID-19 pandemic, there was a decrease in the number of patients seeking treatment at the Primary Health Centre, the invited sample was 78 people who met the inclusion criteria, these were patients with hypertension who had received treatment for at least two months, were aged 18 - 55 years old, could read and write and voluntarily participate as respondents. While the exclusion criteria were: pregnant patients with hypertension. The samples were selected through non-probability sampling purposive sampling. The sample obtained in this study consisted of 72 patients.

Assessment

Data collection was carried out with a questionnaire instrument. The questionnaire used was constructed from the variables of patient knowledge about hypertension therapy, patient attitudes towards hypertension therapy and family support for hypertension patients described in indicators and then questions were made. For the adherence questionnaire, a modified Adherence to Refills and Medications Scale (ARMS) questionnaire was used, excluding non-compliance questions due to medical expenses (Kripalani *et al.*, 2009). Before being used for data collection, the validity of the questionnaire was tested using Pearson Correlation. From the validity test, the results of the knowledge variable about hypertension were 13 valid statements, the attitude variable was eight valid statements, the family support variable was 13 valid statements and the medication adherence variable had 13 valid statements with a significance value < 0.05. From the reliability test, it is known that all of the variables of this study were declared reliable with the value of (Cronbach's Alpha) item > 0.60 (Notoatmodjo, 2014).

An analysis of demographic data was carried out descriptively. Knowledge, attitude and family support were categorised into good, moderate and poor categories and compliance with hypertension treatment is categorised into compliance and non-compliance categories. It is compliant if the value is 15, and it is declared non-compliant if the value is < 15. While a correlative analysis was used to identify the correlation of knowledge, attitude and family support on the compliance of hypertension patients in taking medication using Spearman's Rho Correlation (Djarwanto, 1997).

Results

Sociodemographic overview

Table I shows the sociodemographic description of respondents who sought hypertension treatment in the Tanggulangin Primary Healthcare Centre. The majority of respondents who sought treatment were female (67.5%), and the highest education of respondents was senior high school (35.1%); most of the respondents were unemployed (64.9%).

Table I: Sociodemographic characteristics of patients with hypertension in the Tanggulangin primary healthcare centre

Sociodemographic characteristics		Frequency	Percentage (%)
Gender	Male	25	32.5
	Female	52	67.5
Education	No school	11	14.3
	Elementary	15	19.5
	Junior High School	18	23.4
	Senior High School	27	35.1
	Diploma 1	3	3.9
	Diploma 2	1	1.3
	Bachelor	2	2.6
Profession	General employees	11	14.3
	Government officials	3	3.9
	Self-employed	13	16.9
	Unemployed	50	64.9
Hypertension drugs obtained from the primary healthcare centre	Nifedipine	2	2.7
	Lisinopril	2	2.7
	Captopril	12	16.0
	Amlodipine	59	78.6
Therapy provided by the primary healthcare centre	Single anti-hypertension	62	86.1
	Anti-hypertension	10	13.9
	Combination	0	0
Period of hypertension	< 1 year	30	38.9
	1 – 3 years	28	36.4
	3 – 5 years	12	15.5
	≥ 5 years	7	9.0
Period of medication	< 1 year	28	36.3
	1 – 3 years	27	35.0
	3 – 5 years	9	11.7
	≥ 5 years	6	7.8
	Irregular	7	9.0
Family member with hypertension	Yes	35	47.9
	No	38	52.1
Regularly exercising	Yes	35	47.9
	No	38	52.1
Reducing salt consumption	Sometime	11	14.3
	Yes	48	62.3
	No	18	23.4

Data showed the most hypertension drug received by the respondents was amlodipine (78.6%), and most of them had suffered from hypertension for less than a year (38.9%) and had taken hypertension medications for less than a year (36.3%). Half of the respondents had at least one family member with hypertension (52.1%). In addition, most of the respondents did not exercise regularly (52.1%), and most reduced salt consumption (62.3%) after their diagnosis.

Description of knowledge, attitude and family support

Knowledge, attitude and family support are categorised into good, moderate and poor categories. Patient knowledge about hypertension is mostly in the moderate category (69.4%); most of the respondents showed a positive attitude (83.3%) and had good family support (76.5%) (See Table II).

Table II: Categories of knowledge, attitudes and family support

Variable	Category	Frequency	Percentage (%)
Knowledge	Good	18	25.0
	Moderate	50	69.4
	Less	4	5.6
Attitude	**Positive**	60	83.3
	Negative	12	16.7
Family support	**Good**	55	76.5
	Moderate	15	20.8
	Less	2	2.7

Description of patient adherence to hypertension treatment in the Tanggulangin primary healthcare centre

Compliance with hypertension treatment is categorised in compliant and non-compliant categories. It is compliant if the value is 15; it is declared non-compliant if the value is less than 15. Table III shows the detailed results of patient compliance, and that most patients are not compliant with treatment.

Table III: Patient compliance with hypertension treatment in the Tanggulangin primary healthcare centre

Variable	Category	Frequency	Percentage (%)
Adherence	Obey	4	5.5
	Not obey	68	94.5

Correlation of knowledge, attitude, family support and compliance

The Spearman's Rho correlation test showed knowledge and attitude variables were significantly related to patient adherence to hypertension medication with a significance value of 0.022 and 0.025, respectively. While family support was not significantly related to compliance with hypertension medication with a significance value of 0.39 as shown in Table IV.

Table IV describes the relationship size between variables. The magnitude of the relationship between knowledge and compliance is 0.059 (5.9%), while 0.148 (14.8%) is between attitude and compliance. Thus, it can be seen that patient attitude towards hypertension is strongly related to patient adherence to taking medication. Attitude refers to his belief in recovering from hypertension. Most of the patients came for treatment on their own, and none were accompanied by family members. They admitted that they would ask for their help if they needed it.

Table IV: Spearman's Rho correlation test results

Variable	Test	Knowledge	Attitude	Family Support	Adherence
Knowledge	Correlation coefficient	1.000	0.11		**0.059**
	Sig (2 tailed)		0.925	0.934	**0.022**
	N	72	72	72	72
Attitude	Correlation coefficient	0.11	1.000	0.977	**0.148**
	Sig (2 tailed)	0.925		0.000	**0.025**
	N	72	72	72	72
Family Support	Correlation coefficient	-0.010	0.977	1.000	**0.114**
	Sig (2 tailed)	0.936	0.000		0.39
	N	72	72	72	72
Adherence	Correlation coefficient	0.059	0.148	0.114	
	Sig (2 tailed)	0.022	0.025	0.39	
	N	72	72	72	72

Discussion

According to the sociodemographic description of the respondents, 67.5% of those who sought hypertension treatment were women. Other studies have also shown that with increasing age, the incidence of hypertension is more common in women than men (Ministry of Health of the Republic of Indonesia, 2016). Most of the respondents had a senior high school degree. However, the level of formal education has no relationship with adherence to hypertension medication. Both respondents with high education and low education wanted to recover from their illnesses (Rasajati *et al.,* 2015). The respondents are mostly women who are not employed.

The majority of the respondents received amlodipine. Amlodipine is a dihydropyridine calcium channel blocker group chosen for hypertension treatment in the primary healthcare centre. Anti-hypertensive is a single drug given because blood pressure can still be controlled using this single therapy. In certain conditions, patients received combination therapy with anti-hypertensives and diuretics. Regarding their period of illness, they mostly had suffered from hypertension for less than a year and had taken hypertension medications for less than a year. Based on family background, almost equal portions of patients had family members with the condition as without. In addition, most of the patients did not exercise regularly, and most were reducing their salt consumption.

The description of knowledge, attitude are in the moderate category, while family support is in the good category (see Table II). This shows that most of them did not understand hypertension, and adequate family support is only given when they ask for help. Although they have moderate knowledge about anti-hypertensive drugs and positive attitude towards, they have low adherence to taking anti-hypertensive drugs and most do not comply with treatment. This happens because most patients understand about the condition of their disease but feel no need to take anti-hypertensive drugs. Several factors influencing patient compliance with medication include sociodemographic conditions, healthcare team/system, therapy, disease severity and patient conditions.

According to the Spearman Rho test, patient adherence to treatment is related to knowledge and attitude, which has the highest relationship. Meanwhile, family support has no significant effect. Patient adherence to taking hypertension medication is not significantly related to family support; it is possible that the family members may forget to remind patients to take their medication. Hence, patients have less desire to visit primary healthcare centres unless they have positive attitudes towards their disease. These results are in line with the research of Sari Hanum and authors (2019) which states that there is a relationship between knowledge, motivation and adherence to taking anti-hypertensive drugs, but there is no relationship with family support. Based on the KAP theory (knowledge, attitude and practice) it is explained that the patient's knowledge about hypertension therapy will cause them to form an attitude towards therapy, however, to produce compliance actions, supporting factors or an enabling condition are necessary, these can include supportive facilities and infrastructure (Priyoto, 2014).

Conclusion

From the results of the study, it can be concluded that patient compliance with hypertension medication is related to knowledge and attitude towards hypertension. However, family support was not significantly related to their compliance.

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References

Benowitz, N.L. (2012) "*AntihypertensiveAgents"* in Katzung GB, Masters SB, and Treor AJ. Basic and Clinical Pharmacology 12th Edition. United State of America: McGraw Hill Companies

Bungin, B. (2010). *Metodologi Penelitian Kualitatif.* PT. Raja Grafindo Persada. Jakarta

Dipiro J.T., Wells B.G., Schwinghammer T.L., & Dipiro C. V. (2017). Chapter Cardiovascular Disorder in Pharmacotherapy Handbook 10th ed. England: McGraw Hill Education Companies

Djarwanto (1997). *Statistika Nonparametrik*. BPFE - Yogyakarta. Yogyakarta

Hanum, S., Rahmaida, N., Marlinda, & Yasir. (2019). The Relationship between Knowledge, Motivation, and Family Support with Compliance with Taking Medicines for Hypertension Patients at Peukan Bada Health *Center,* Aceh Besar District. *JKT*, **10**(1), 30-35

Harahap, D., Aprilla, N., & Muliati, O. (2019). The Relationship of Knowledge of Hypertension Patients about Hypertension with Compliance with Taking Antihypertensive Drugs in the Kampa Health Center Work Area in 2019. *Journal of Ner*s, **3**(2), 97 – 102

James, P.A., Oparil, S., Carter, B.L., Cushman, W.C., Dennison-Himmelfarb, C., Handler, J., Lackland, D.T., LeFevre, M.L., MacKenzie, T.D., Ogedegbe, O., Smith, S.C., Jr, Svetkey, L.P., Taler, S.J., Townsend, R.R., Wright, J.T., Jr, Narva, A.S., & Ortiz, E. (2014). 2014 evidence-based guideline for the management of high blood pressure in adults: report from the panel members appointed to the

Eighth Joint National Committee (JNC8). *JAMA*, **311**(5), 507–520. https://doi.org/10.1001/jama.2013.284427

Kearney, P.M., Whelton, M., Reynolds, K., Whelton, P.K., & He, J. (2005). Global burden of hypertension: analysis of worldwide data, *The Lancet*, **365**, 217-223

Kripalani, S., Risser, J., Gatti, M., & Jacobson, T. (2009). Development and evaluation of the Adherence to Refills and Medications Scale (ARMS) among low-literacy patients with chronic disease. *Value in health: the journal of the International Society for Pharmacoeconomics and Outcomes Research*, **12**(1), 118–123. https://doi.org/10.1111/j.1524-4733.2008.00400.x

Ministry of Health of the Republic of Indonesia. (2016). Indonesian Health Data Profile 2015. Jakarta: Ministry of Health RI

Ministry of Health of the Republic of Indonesia. (2018). Information on Hypertension Data and Information. Jakarta: Ministry of Health of the Republic of Indonesia

Ministry of Health RI. (2017). Indonesian Health Data Profile 2017. Jakarta: Ministry of Health of the Republic of Indonesia

Notoatmodjo, S. (2014). *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta

Pramestutie, H.R., & Silviana, N. (2016). The Knowledge Level of Hypertension Patients for Drug Therapy in the Primary Health Care of Malang. *Indonesian Journal of Clinical Pharmacy,* **5**, 26–34

Priyoto, (2014) *Teori Sikap Dan Perilaku Dalam Kesehatan*, Nuha Medika, Yogyakarta, 2014, Yogyakarta

Rasajati, Qorry Putri, Raharjo, Bambang Budi, & Ningrum, D.N.A. (2015) Factors Associated with Medication Compliance Hypertension Patient in the Work Area of the Kedungmundu Health Center, Semarang City. *Unnes Journal of Public Health,* **4**(3), 16-23

Sweetman, S.C. (2009). Martindale the Complete Drug Reference 36th ed. London: Pharmaceutical Press, III

Vitahealth. 2006. *Hypertension*. Jakarta: Gramedia Pustaka Utama

WHO (World Health Organisation). (2013). A global brief on Hypertension: Silent killer, global public health crisis World Health Day 2013 (online). Available from: https://www.who.int/publications/i/item/a-global-brief-on-hypertension-silent-killer-global-public-health-crisis-world-health-day-2013

WHO (2021) Hypertension fact sheet (online). Available from: https://www.who.int/news-room/fact-sheets/detail/hypertension