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ORIGINAL ARTICLES

Relationship between knowledge and adherence to hypertension treatment

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Effects of *eleutherine bulbosa* (mill.) urb. bulb extract on mice glucocorticoid-induced osteoporosis models

Fina Luthfiana, Riza Ambar Sari, Irawati Sholikhah, Katsuyoshi Matsunami, Sukardiman Sukardiman, Retno Widyowati

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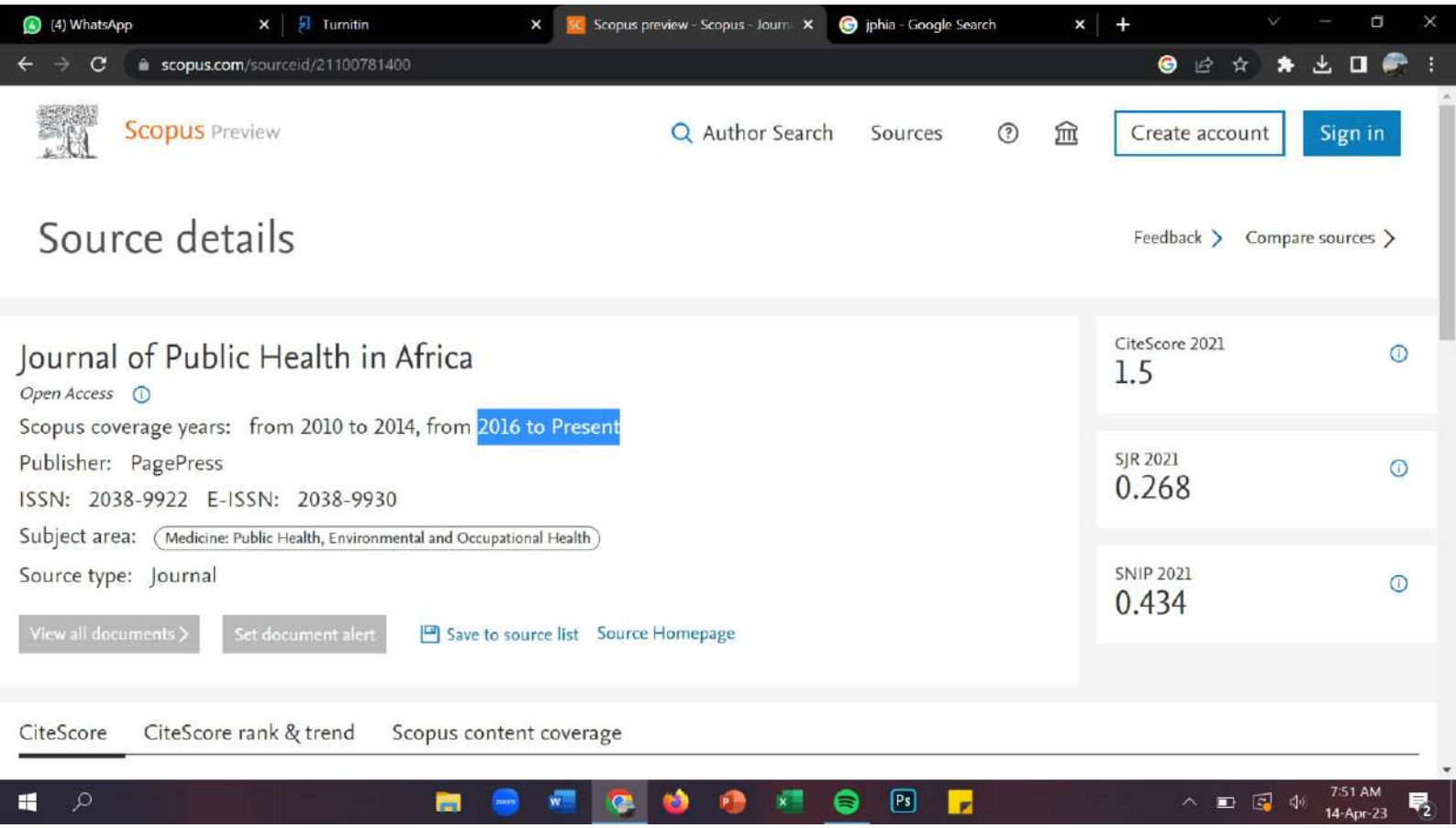
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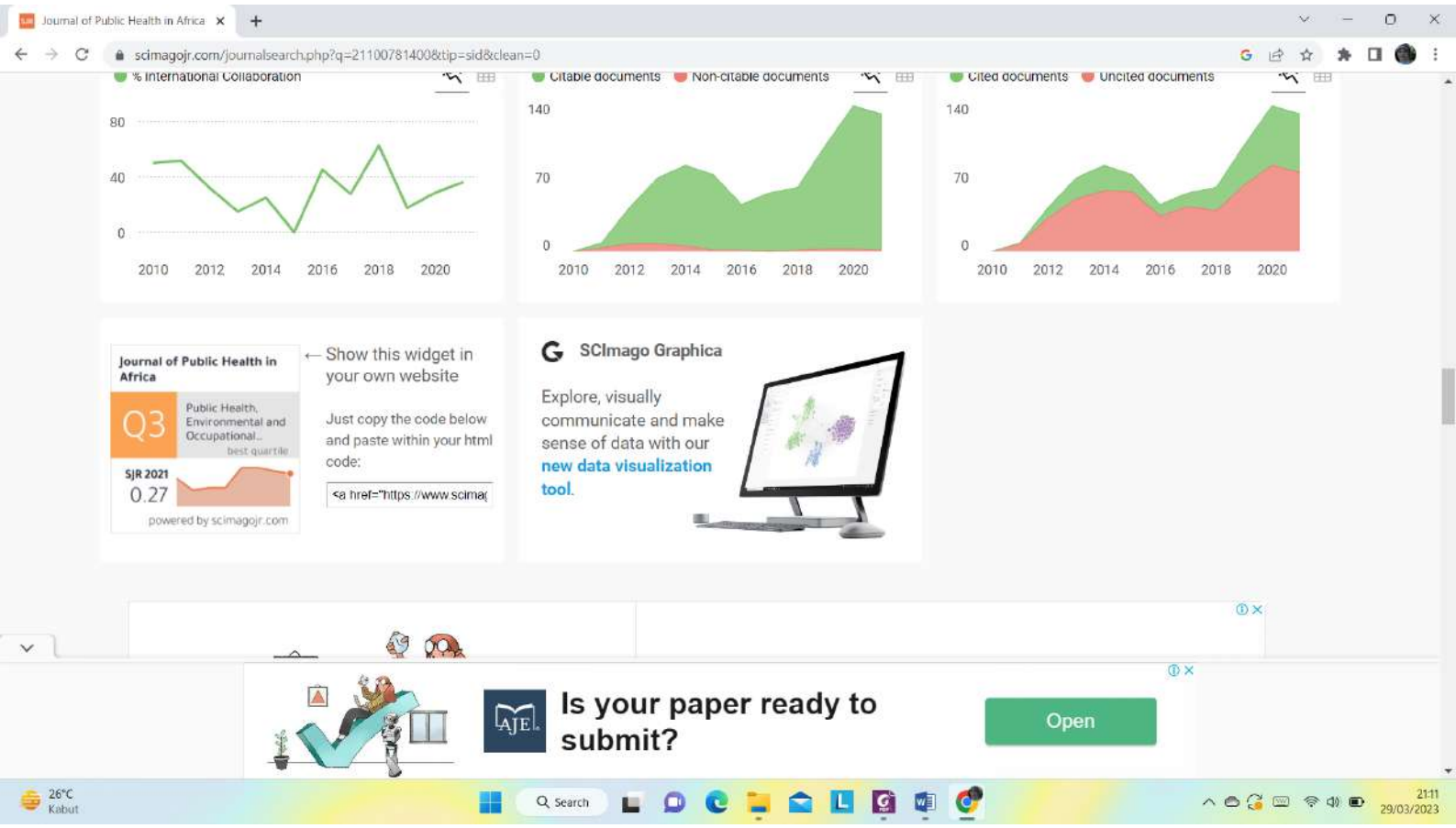
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Relationship between knowledge and adherence to hypertension treatment

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Abstract

Background: Hypertension is a continuous increase in arterial blood pressure. About 50-70% of patients do not comply with hypertension treatment. Adherence is a health behavior that can be influenced by several factors, including knowledge.

Objective: This study aimed to analyze the relationship between patients' knowledge and adherence to hypertension medication at the Tanggulangin Primary Healthcare Center, Sidoarjo City.

Methods: The research method was analytic-observational with a cross-sectional design. Sixty-five sampled patients participated in this study after meeting inclusion criteria: at the age of over 18 years, having the ability to read and write, and signing the consent forms. The respondents were selected through purposive sampling. Data were analyzed descriptively with the Spearman Rho test to identify a correlation between knowledge and adherence to medication.

Results: Patients' knowledge was mostly categorized as good (60%), followed by moderate category (40%). In addition, adherence to medication was all in the moderate category (100%). The correlation test results show a weak relationship between knowledge and adherence to medication (P=0.007; R=-0,331).

Conclusion: Patients' knowledge is related to adherence to hypertension treatment.

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Key words: Adherence, Hypertension, Knowledge, Primary Health Center.

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Introduction

The World Health Organization (WHO) in 2019 reported that the number of people with hypertension in the world was around 1.13 billion. The WHO predicted that the prevalence of hypertension will continue to increase, and by 2025 as many as 29% of adults in the world have hypertension.[1] Based on the 2018 National Health Indicators survey, the prevalence of hypertension in Indonesia increased to 34.1% in 2018 from 30.9% in 2017.[2] The Sidoarjo Regency Health Office shows that hypertension was ranked third out of the top 10 highest diseases in Sidoarjo City in 2018.[3]

Hypertension is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg. It is called a silent killer with symptoms that can vary in each individual.[2] The hypertension criteria used in case determination refer to the JNC VIII 2014 diagnostic criteria. The normal blood pressure that one should have is <140/90 mmHg, and the standard blood pressure for patients with chronic kidney disease and diabetes is 130/80 mmHg.[4]

In general, hypertension treatment is given by using a class of drugs that block the angiotensin-converting enzyme, calcium channel blockers, diuretics, beta-blockers, alpha-blockers, and angiotensin II receptor antagonists. Each of these drug groups consists of several types of drugs with different pharmacological and pharmacodynamic properties. In addition, hypertension is treated using non-pharmacological therapies or a healthy lifestyle. Both medical and behavioral therapies are effective steps to treat hypertension.[4] The success of hypertension treatment is influenced by several factors, one of which is adherence to treatment.[5]

Adherence to hypertension treatment is important because patients need to control their blood pressure to avoid complications that may lead to death. In addition, blood pressure can be controlled by taking regular antihypertensive drugs for long-term medication. Patients who control blood pressure can reduce the risk of damage to important body organs such as the brain, heart, and kidneys.[2] Adherence to treatment is an open behavior that is

classified as public health behavior. According to Lawrence Green (1993) in Notoatmodjo (2014), one of the factors that influence adherence is knowledge.[6]

The WHO shows that around 50-70% of patients with hypertension did not adhere to treatment.[1] Research on the relationship between knowledge and adherence to medication at the Nagi Health Center shows that 82.8% of patients had good knowledge about hypertension, and only 56.9% complied with the medication.[7] Their adherence might be influenced by several factors such as knowledge, motivation, and family support.

Mathavan and Pinatih (2017) assert that some problems cause patients to have low knowledge about hypertension.[8] Research conducted at the Malang City Healthcare Center found that the percentage of patients who had high knowledge about hypertension was 72.63%.[9] The results of these studies indicate that patients with hypertensions still have low knowledge about their disease.

Primary healthcare center is the frontliner in the health sector. Non-adherence to treatment as suggested by primary healthcare workers will have a detrimental impact on the wider community.[10] Therefore, this study was focused on identifying a relationship between knowledge and adherence to hypertension treatment in outpatients of the Tanggulangin Primary Healthcare Center, Sidoarjo City.

Materials and Methods

This study was an observational analytic study using a cross-sectional approach. It was conducted to identify a relationship between patients' knowledge and adherence to medication. It was conducted from April to June 2021. A questionnaire was given to patients who met the inclusion criteria. Measurement of patients' knowledge was done using the Hypertension Knowledge-Level Base questionnaire;[11] survey on compliance of patients with hypertension was collected using the Adherence to Refills and Medications Scale (ARMS) questionnaire.[12] The sample size was 65 people who already met the inclusion criteria: more than 18 years old, able to read and write, and signing the consent form. Pregnant patients with hypertension were not included as the samples. All respondents were selected through purposive sampling. A lifestyle of patients and complications were the independent variables to be studied, and compliance with medication was the dependent variable. Adherence to medication involved adherence to undergo medication and adherence to buy the prescription. Survey was used to collect data. Sociodemographic data were then analyzed, and data on knowledge and adherence to treatment were processed using the Spearman-Rho test.

Results

The study's ethical approval was given by the Health Research Ethics Commission. Patients with hypertension who signed a consent form were eligible to be the research samples. The sociodemographic data of 65 respondents can be seen in Table 1.

The condition of patients *i.e.*, the length of suffering, smoking habits, and physical activity as well as the types of drugs consumed can be seen in Table 2.

The treatment given at the Healthcare Center applied the hypertension treatment algorithm in JNC-8 (2014) that recommends giving a dose based on the patient's condition. This guideline states that if the therapy has not given any improvement within one month, then the drug dose can be increased or a combination of drugs can be administered.

Category of patients' knowledge and adherence to treatment

Knowledge is categorized as good, moderate, and less, and treatment adherence is categorized as high, moderate, and low. Patients' knowledge and adherence to treatment can be seen in Table 3.

Table 3 shows that most patients have good knowledge (60%) and all of them moderately adhere to treatment (100%). Knowledge is an important domain for the formation of actions.[6]

Analysis of relationship between knowledge and adherence to treatment

Based on the Spearman Rho test, relationship analysis results between knowledge and adherence to treatment are presented in Table 4.

Table 1. Socio-demographics of patients with hypertension at the Tanggulangin Primary Healthcare Center.

Sociodemographic data	Criteria	n (%)
Age	20-29 Years	1 (1.5)
	30-39 Years	3 (4.6)
	40-49 Years	13 (20)
	50-59 Years	27 (41.5)
	60-69 Years	17 (26.2)
	70-79 Years	4 (6.2)
Gender	Men	15 (23.1)
	Woman	50 (76.9)
Last education	No school	3 (4.6)
	Primary school	18 (27.7)
	Junior High School	22 (33.8)
	Senior High School	16 (24.6)
	Diploma	4 (6.2)
	Bachelor	2 (3.1)
Employment	Unemployed	48 (73.8)
	Employee	10 (15.4)
	Civil servant	3 (4.6)
	Self-employed	4(6.2)

Table 2. Condition of patients with hypertension at the Tanggulangin Primary Healthcare Center.

Condition of patients with hypertension	Criteria	n (%)
The length of suffering	< 1 year	13 (20)
	1-5 years	50 (76.9)
	>5 years	2 (3.1)
Smoking	Every day	2 (3.1)
	Sometimes	2 (3.1)
	Ever smoked	5 (7.7)
	Do not smoke	56 (86.2)
Sport	Yes	44 (67.7)
	No	21 (32.3)
Types of antihypertensive drugs	Amlodipine	59 (90.8)
	Captopril	3 (4.6)
	Nifedipine	3 (4.6)

Discussion

Table 1 shows that the most respondents are in the age range of 50-59 years (41.5%), female (76.9%), junior high school graduates (33.8%), and non-workers (73.8%). Among other age groups, 55-year-old group dominates. Several previous studies have also shown that with increasing age, the incidence of hypertension is more likely to occur in women than in men.[13] In addition, the level of formal education has no relationship with adherence to medication because respondents with high education and low education both have motivation to recover from their illnesses.[14] Unemployed patients, including housewives and retirees are more aware of hypertension than someone who works.[15]

Table 2 shows that 86.2% of non-smoker respondents commonly used amlodipine (90.5%). Most respondents suffered from hypertension for 1-5 years. This result is in line with other studies that shows that suffering from hypertension for 1-5 years encourages patients to control blood pressure and take medication; this suffering period might be the beginning for patients to develop a greater curiosity and desire to recover than more than 6 years of suffering. Besides, lifestyle modifications such as exercise are necessary to treat hypertension. This current study found that 67.7% of respondents did regular exercise including morning walks every day, jogging, exercise 1-2 times a week, and cycling. Exercising regularly for 30-60 minutes/day, at least 3 days/week, can lower blood pressure. For patients who do not have time to exercise, light physical activities such as walking, cycling, or stair climbing can be the options. Another lifestyle modification is keeping oneself from smoking. Although smoking is not yet identified as having a direct effect on increasing blood pressure, it is one of the main risk factors for cardiovascular diseases.[16] Smoking habits are associated with the risk of developing other diseases in patients with hypertension.[17]

In this study, single antihypertensive drug was more consumed by patients than antihypertensive combination. Most consumed antihypertensive drug is Calcium Chanel Blockers (amlodipine) because the Healthcare Center follows the National Institute for Health and Clinical Excellence Guidelines which suggests the administration of calcium channel blockers as first-line therapy for patients over 55 years of age.[18] Amlodipine is effective for elderly with hypertension to reduce the side effects of vasodilation. Having a long half-life can effectively control blood pressure with the frequency of use once a day.[19]

Knowledge in this study was divided into five indicators: the definition of hypertension, symptoms of hypertension, hypertension therapy, lifestyle, and complications of hypertension. From these indicators, patients understood when someone has hypertension and develops symptoms of increased blood pressure. Hypertension is asymptomatic at its early stages. Signs of physical abnormalities depend on the cause, duration, and degree of hypertension. In most patients, hypertension does not cause symptoms. However, several symptoms can occur simultaneously.[20] Symptoms of hypertension in general are headache/heavy feeling in the neck, vertigo, palpitations, fatigue, blurred vision, ringing in the ears (tinnitus), and nosebleeds.[2] In the indicator of hypertension therapy, patients understood the correct hypertension therapy, but some patients did not experience side effects. The consumption of antihypertensive drugs may not provide the best results when it is applied due to increased blood pressure or symptoms.[21]

Adherence is one of the important factors in determining the therapeutic outcomes for patients.[5] The analysis results shows that 100% of patients moderately adhered to their medication. Based on the calculation of the ARMS questionnaire, smaller scores would result in higher compliance. Increased blood pressure that lasts for a long time (persistent) can cause several complications including damage to the kidneys, heart (coronary heart), and brain (stroke). Complications of hypertension can occur due to delay in early detection and inadequate treatment. In addition, many hypertensive patients have uncontrolled blood pressure.[2] Table 4 shows that there is a relationship between knowledge and adherence to treatment with a P-value of <0.05. The results of this study are in line with the results of research conducted at the Ogan Komering Ilir District Healthcare Center in 2019[22] and at Lawe Dua Healthcare Center, especially in elderly with hypertension.[23] The correlation between knowledge and adherence shows a negative value (-0.331), meaning that higher total knowledge score results in lower total adherence score. The r-value of the knowledge and adherence analysis is -0.331, indicating a sufficient correlation. This may be influenced by other factors that correlate with adherence *i.e.*, duration of therapy, frequency of use, the taste of the drug, and failure to understand the importance of the therapy.[24]

Table 3. Category of Knowledge and Adherence to Hypertension Treatment.

Total scores	Categories	N (%)
Knowledge		
76-100%	Good	39 (60)
56-75%	Moderate	24 (36.9)
≤55%	Less	2 (3.1)
Adherence		
12	High	0 (0)
13-30	Moderate	65 (100)
31-48	Low	0 (0)

Table 4. The relationship between patients' knowledge and adherence to treatment.

Independent Variable	Dependent Variable	P-value	Correlation
Knowledge	Adherence	0.007	- 0.331

Conclusions

This study concludes that patients' knowledge about hypertension is related to adherence to hypertension treatment at the Tanggulangin Public Health Center.

References

1. World Health Organization, Hypertension. WHO, 2019
2. Ministry of Health RI. Information on Hypertension Data and Information. 2018, Jakarta: Ministry of Health of the Republic of Indonesia.
3. Sidoarjo City Health Office. Sidoarjo District Health Profile 2018. Sidoarjo: Sidoarjo City Health Office
4. Sweetman SC, Martindale the Complete Drug Reference, 20009 36th ed. London: Pharmaceutical Press, III.
5. Hanum S, Rahmaida N, Marlinda, Yasir. The Relationship between Knowledge, Motivation, and Family Support with Compliance with Taking Medicines for Hypertension Patients at Peukan Bada Health Center. Aceh Besar District

2019;10:30-5.
6. Notoatmodjo S. Ilmu Perilaku Kesehatan .2014 Jakarta: Rineka Cipta.
7. Dilianty O, Sianturi S, Marlina P. 2019. Increasing Medication Compliance Through Education for Hypertension Patients in East Flores Regency.2014, Scientific J Nursing Health Vol 2014;15:55-63.
8. Mathavan J, and Pinatih G. An overview of the level of knowledge on hypertension and medication adherence in patients with hypertension in the working area of the Kintamani I Health Center, Bangli-Bali. Med Science Digest 2017;8:176-80.
9. Pramestutie HR, and Silviana N. The Knowledge Level of Hypertension Patients for Drug Therapy in the Primary Health Care of Malang, Indonesian J Clinical Pharmacy 2016;5:26-34.
10. Untari E. Agilina A, and Susanti R. Evaluation of the Rationality of Antihypertensive Drug Use at the Siantan Hilir Health Center, 2018, Pontianak City in 2015;5:32-9.
11. Erkoc S, Isikli B, Metintas S, Kalyoncu C. Hypertension Knowledge-Level Scale (HKLS): A Study on Development, Validity, and Reliability.2012, Int J Environ Res Public Health 9 1660 4601 pages 1018-29
12. Kripalani S, Risser J, Gatti M, Jacobson T. Development and Evaluation of the Adherence to Refills and Medication Scale (ARMS) among Low-Literacy Patients with Chronic Disease.2009, International Society for Pharmacoeconomics and Outcomes Research 1098 3015/09/118 :118-23
13. Kearney PM, Whelton M, Reynolds K, et al. Global burden of hypertension: analysis of worldwide data. The Lancet 2005;365:217-23.
14. Rasajati, Qorry P, Raharjo, Bambang B, Ningrum, D. N. A. Factors Associated with Medication Adherence to Hypertension Patients in the Work Area of the Kedungmundu Health Center, Semarang City. Unnes J Public Health 2015;4:16-23.
15. Shirani S, Kelishadi R, Sarrafzadegan N, et al. Awareness, Treatment, and Control of Hypertension, Dyslipidaemia and Diabetes Mellitus in an Iranian Population: the IHHP study. East Mediterr Health J 15:1455-63.
16. PERKI, Guidelines for the Management of Hypertension in Cardiovascular Disease, 1st edition, Association of Indonesian Cardiovascular Specialists, 2015, Jakarta.
17. Binfar. Pharmaceutical Care for Hypertensive Disease. Indonesian Ministry of Health, 2006.
18. Krause T-, Lovibond K, Caulfield M, et al. Management of hypertension: summary of NICE guidance, Pub Med gov. BMJ 2011;25;343:d4891.
19. Dipiro JT, Wells BG, Schwinghammer TL, and Dipiro CV. Chapter 10. Cardiovascular Disorder in Pharmacotherapy, 2017. Handbook 10th ed. England: McGraw Hill Education Companies.
20. World Health Organization. A global brief on Hypertension: Silent killer, global public health crisis World Health Day 2013. www.who.int. World Health Organization 1–40.
21. Kurniawaty, Maharani. The Effect of Coffee on Hypertension. Molecular Biology Department, Faculty of Medicine, University of Lampung, Lampung 2016;5:9.
22. Wulandari R, Puspita S. The Relationship of Knowledge, Family Support, and the Role of Health Officers with Compliance with Hypertension Patients in Undergoing Treatment. Nursing Science Study Program, Universitas Kader Bangsa Palembang Vol 2019;4.
23. Asrina N, Andriani D, Anisa D. Relationship between Knowledge and Compliance in Elderly Hypertension at Lawe Dua Health Center, Bukit Tusam District, Southeast Aceh Regency. J of Ners Nurul Hasanah, 2020;8 No.2
24. Hussar D. Patient Compliance. In: Gennaro R, Beringer P, and DerMarderosian A. 2005. Remington The Science and Practice of Pharmacy. 21 st edition, Philadelphia: Lippincott Williams and Wilkins, 2005;1782-91.