THE RELATIONSHIP BETWEEN LEVEL OF KNOWLEDGE AND MEDICATION COMPLIANCE IN HYPERTENSIVE PATIENTS AT SUKARAMAI MEDAN HEALTH CENTER

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ABSTRACT

Hypertension increases blood pressure that can cause complications such as stroke and coronary heart disease. Hypertension is the third leading cause of death in Indonesia for all ages, after stroke and tuberculosis. A patient's non-compliance with antihypertensive drugs is one of the significant factors in therapy failure. Basic Health Research (RISKESDAS) in 2007 reported the prevalence of hypertension in the population aged 18 years and above reached 31.7% and those taking antihypertensive drugs only 0.4%. The interaction of various factors also plays a role in influencing the compliance of hypertension treatment.This study aims to identify the relationship of knowledge with medication compliance in hypertensivepatients at Sukaramai Medan Health Center. Analytical research, with a cross-sectional design, i.e., by taking independent variable data (knowledge) and dependent variables (Medication Compliance) simultaneously without follow-up. The population of this study is people with hypertension in Sukaramai Medan Health Center. Bivariate analysis to look at the relationship between knowledge and Medication Compliance. The statistical test used is Chi-Square with a value of p < 0.05 showing a meaningful statistical test result. Compliance with hypertension treatment in respondents with a high level of knowledge of 18 respondents (56.2%) was non-compliant, and 14 respondents (43.8%) obeyed. While respondents with a low level of knowledge of 25 respondents (78.1%) were non-compliant, and seven respondents (21.9%) obeyed. Chi-Square analysis results obtained value p = 0.062 (p>0.05). There is no relationship between knowledge level and medication compliance in hypertensive patients at Sukaramai Medan Health Center

Keyword : hypertension, level of knowledge, level of medication compliance

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1. INTRODUCTION

Hypertension is an increase in bloodpressure that can later cause continued problemsfor an organ target, such as stroke for the brain, coronary heart disease for blood vessels and theheart muscle.[1] In all countries of the world, almost1 billion people or about a quarter of the adult population has hypertension. According to WHO, there are currently 600 million people with hypertension worldwide, and 3 million of them dieeach year. WHO estimates that in 2025 there willbe an increase in cases of hypertension of about80% wherein 2000 from 639 million cases to 1.5 billion cases in 2025 that occurred in developing countries, including Indonesia.[2]

Statistics from who in 2012 reported that high-risk hypertension causes about 51% of stroke and45% of coronary heart disease. Based on WHO data from 70% of people with hypertension, only 25% received treatment, and only 12.5% were treated well. Basic Health Research (RISKESDAS) in 2010, organized by the Ministry of Health, showed that hypertension in Indonesia in the population aged 18 years andabove Indonesia is 31.7%. The number of people with hypertension is estimated at 15 million people, but only about 4% are controlled hypertension.[2] Hypertension is the third leading cause of death in Indonesia for all ages (6.8%) after stroke and tuberculosis.[3]

Treatment adherence is an important factorin hypertensive patients' continued health and well-being. Adherence and adherence are prerequisites for the effectiveness of hypertension therapy, and the greatest potential for improvement in hypertension control lies in improving the behavior of such patients. Meanwhile, the patient's non-compliance with antihypertensive drugs is one of the main factorsof therapy failure. WHO data (2011) of 50% of known hypertension sufferers, only 25% received treatment, and only 12.5% were treated properly. Basic Health Research (RISKESDAS) in 2007 reported that the prevalence of hypertension in the population aged 18 years and above in Indonesia is quite high, reaching 31.7% where the population who know they have hypertensionis only 7.2% and those who take antihypertensivedrugs only 0.4%.

A cross-sectional study conducted by Alfredo et al. using the same compliance questionnaire as this study (Morisky 8-Item Medication Adherence Questionnaire) found thatonly 19.7% had high adherence. The interaction of various factors plays a role in influencing the compliance of the hypertension treatment program; these factors are broadly divided into factors from within the patient himself, therapeutic factors, health care factors, socioeconomic factors, and disease factors. Lim and Ngah, in 1991 conducted a study to look at the causes of drug withdrawal in hypertensive patients and get in 85% of hypertensive patients obtained a lack of motivation as a reason for non-compliance in treatment.[5]

Knowledge is the result of knowing, and thisoccurs after people have sensed a particularobject. Good and adequate knowledge of hypertension will be able to apply it into everydaylife[5] So that there is an increase in the patient's speed in the treatment of hypertension. Based onthe description above, researchers are interestedin researching whether there is a "knowledge relationship with medication adherence in hypertensive patients at Sukaramai Medan Health Center." Lack of knowledge will affecthypertensive patients to overcome recurrence ortake precautions so that complications do not occur.

2.   METHOD

This type of research is analytical research, with *a cross-sectional* design (cut latitude), namely by taking independent variable data (knowledge) and dependent variables (medication compliance) simultaneously at one time without follow-up. Data collection was conducted at Sukaramai Medan Health Center, Medan City, North Sumatra Province. This studywas conducted from December 26, 2018 - January 09, 2019.

The independent variables in this study were gender, age, level of education last, occupation, long-suffering from hypertension, health insurance participation, and knowledgelevel about hypertension. At the same time, the dependent variable is the level of compliancein undergoing hypertension treatment. The level of knowledge about hypertension was assessed using questionnaires.

3.   RESULTS

Table 1: Distribution of Respondents By Gender

Gender	Frequency	Percentage (%)
Woman	43	67,2
Man	21	32,8
Total	64	100

Based on table 1, based on gender, respondents in this study are mostly female.

Table 2: Distribution of Respondents By Age

Age	Frequency	Percentage (%)
< 60 years old	16	25
≥ 60 years old	48	75
Total	64	100

Based on table 2, that respondents to thisstudy are the majority aged ≥ 60 years based onage.

Table 3: Distribution of Respondents Based on Academic Background

Academic Background	Frequency	Percentage (%)
Unschooled	4	6,3
Not graduated from elementary	3	4,7
Elementary	20	31,3
Junior High School	12	18,8
Senior High School	19	29,7
College	6	9,4
Total	64	100

Based on table 3, according to the academic background, the largest number of respondents are those who finished elementary school and high school, with a total of 20 people (31.3%) and 19 people (29.7%), while the lowestwere respondents who did not finish elementary school with a frequency of 3 people (4.7%).

Table 4: Distribution of Respondents by Job

Job	Frequency	Percentage (%)
Civil Servant	1	1,6
Private Employee	1	1,6
Entrepreneur	10	15,6
Farmer/Laborer	1	1,6
Unemployed	44	68,8
Other	7	10,9
Total	64	100

Based on table 4, the distribution of respondents by the most jobs is 44 people (68.8%), while the lowest are respondents who work as civil servants, private employees, and farmers/workers, with the same number of people(1.6%).

Table 5: Distribution of Respondents Based on Long Suffering From Hypertension

Long Suffering	Frequency	Percentage (%)
≤ 5 years	36	56,2
> 5 years	28	43,8
Total	64	100

Based on table 5, the majority of respondents who studied suffered from hypertension ≤ 5 years, which is as many as 36 patients (56.2%), while respondents who suffered from hypertension >5 years as many as 28 patients (43.8%).

Table 6: Distribution of Respondents Based on Health Insurance Participation

Participation	Frequency	Frequency (%)
+	45	84,9
-	8	15,1
Total	53	100

Based on table 6, the distribution of the frequency of respondents according to thehighest health insurance participation is those who follow health insurance, which is as many as45 patients (84.9%). In comparison, those who donot follow health insurance are as many as eight patients (15.1%).

Table 7: Distribution of Respondents Based on Knowledge

Knowledge	Frequency	Percentage (%)
High	32	50,0
Low	32	50,0
Total	53	100

Based on table 7, there is a comparison of the frequency of the same study respondents between those who have a low and high level of knowledge of hypertension, which is as many as2 people (50.0%)

Bivariate Analysis

Bivariate analysis determines the relationship between free variables and bound variables.

Table 8: The Relationship between Sex and Medication Compliance

Sex	Compliance Level				P-value
	Obedient		Disobedient		
	f	%	f	%	
Women	15	34.8	28	65.2	0.614
Men	6	28.5	15	71.5	

Based on table 8, the analysis between the sexes and compliance in undergoing hypertension treatment, it was obtained that from43 respondents of the female sex who did not comply with the treatment of hypertension, namely 28 respondents (65.2%) and those who obediently underwent hypertension treatment asmany as 15 respondents (34,8%). While of the 21 male respondents, 15 respondents (71.5%) were declared non-compliant in undergoing hypertension treatment, and six respondents (28.5%) were obedient in undergoing hypertension treatment. In addition, the results ofthe *Chi-Square* test analysis obtained a valueof $p=0.614$ (p>0.05) which means that there is norelationship between sex and compliance in undergoing hypertension treatment at SukaramaiMedan Health Center.

Table 9: The Relationship between Academic Background and Medication Compliance

Academic Background	Compliance Level				P-value
	Obedient		Disobedient		
	f	%	F	%	
High level	10	41,7	14	58,3	0,243
Low level	11	27,5	29	72,5	

Based on table 9, the analysis between respondents' education and compliance in undergoing hypertension treatment, it that from 24 highly educated respondents who did not comply with hypertension treatment, 14 respondents (58.3%) and those who obediently underwent hypertension treatment as many as ten respondents (41,7%). While 40 poorly educated respondents amounted to 29 respondents (72.5%) were declared non-compliant in undergoing hypertension treatment, and 11 respondent (27.5%) was obedient in undergoing hypertension treatment.

Table 10: The Relationship between Current Work Status and Medication Compliance

Current Work Status	Compliance Level				P-value
	Obedient		Disobedient		
	f	%	f	%	
Have a job (+)	7	35	13	65	0,802
Have a job (-)	14	31,8	30	52	

Based on table 10, the analysis between the current work status of respondents and compliance in undergoing hypertension treatment, it was obtained that from 20 respondents who worked non-compliantly undergoing hypertension treatment, namely 13 respondents (65%) and those who obedientlyunderwent hypertension treatment as many as seven respondents (35%). While of the 44 respondents who did not work, 30 respondents (52%) were declared non-compliant in undergoing hypertension treatment, and 14respondents (31.8%) were obedient in undergoing hypertension treatment. In addition, the results of the *Chi-Square* test analysis obtained a value of $p= 0.802$ (p>0.05) which means that there is no relationship between the respondent's work and compliance in undergoinghypertension treatment at Sukaramai Medan Health Center.

Table 11: The Relationship Between Long Suffering From Hypertension and Medication Compliance

Long Suffering from Hypertension	Compliance Level				p-value
	Obedient		Disobedient		
	f	%	f	%	
≤ 5 years	12	33,3	24	66,7	0,920
> 5 years	9	32,1	19	67,9	

Table 12: The Relationship between Health Insurance Participation and Medication Compliance

Participation	Compliance Level				P-value
	Obedient		Disobedient		
	f	%	f	%	
Participated	21	32,8	43	67,2	0,0
Not-participated	0	0	0	0	

Based on table 12, the analysis between the participation of health insurance and compliance in undergoing hypertension treatment, it was obtained that from 64 respondents who participated in health insurancewho did not comply with hypertension treatment 43 respondents (57.8%) and those who obediently underwent hypertension treatment asmany as 21 respondents (42.2%).

Table 13: The Relationship between Knowledge Level and Medication Compliance

Knowledge Level	Compliance Level				Total		p-value
	Obedient		Disobedient				
	f	%	f	%	f	%	
High level	14	43,8	18	56,2	32	100	0,062
Low level	7	21,9	25	78,1	32	100	

Based on table 13, the analysis between knowledge level and compliance in undergoing hypertension treatment, it was obtained that from 32 respondents whose knowledge levels were high who did not comply with hypertension treatment, 18 respondents (56.2%) and thosewho obediently underwent hypertension treatment as many as 14 respondents (43.8%). While of the 32 respondents whose knowledge level is low by 25 respondents (78.1%) were declared non-compliant in undergoing hypertension treatment, seven respondents (21.9%) were obedient in undergoing hypertension treatment. In addition, the results of the *Chi-Square* test analysis obtained a value of $p=0.062$ (p>0.05) which means that there is no relationship between knowledge levels withcompliance in undergoing hypertension treatment at Sukaramai Medan Health Center.

4. Discussions

The bivariate analysis results showed no significant association between sex and compliance in undergoing hypertension treatment at Sukaramai Medan Health Center with a value of p = 0.614 (p>0.05). The results also showed that most respondents were womenat 67.2% and men at 32.8%. This study is by research conducted by Saepudin et al. (2011), which showed no relationship between sex and drug use compliance in hypertensive patientswith a value of p = 0.826.[8] This is due to the absence of meaningful differences between obedient female respondents and obedient malerespondents. That means that both female and male respondents have the awareness to adhereto hypertension medications.

In contrast to Alphonce's (2012) research that sex is associated with adherence to the treatment of hypertensive patients with a value ofp = 0.044.[9] In the study conducted by Alphonce, the sample used was a hypertensive patient aged18 years and above, so the age range is wider. Inhis research, Alphonce mentioned thatimpotence is a side effect of antihypertensive drugs that can affect drug adherence in male respondents.

The Relationship between Education Leveland Medication Compliance

Based on the study results, most of the hypertensive patients undergoing treatment at Sukaramai Medan Health Center were poorly educated. Patients who seek treatment at Public health centers have different educational backgrounds, both formal and non-formal education. The difference in the level of education directly or indirectly will affect the mindset—the patient's point of view and acceptance of the treatment measures hereceived.

In this study, there was no associationbetween the education level of respondents and adherence to taking drugs in hypertensive patients. The results of this study contradict the research conducted by Exa Puspita, which mentions that there is a relationship between education level and drug compliance in hypertensive patients.[10] Rani's research explains that the higher a person's level of education, the better the level of adherence to the treatment therapy he receives.[11] This happens because higher education people tendto have broader knowledge and insight. It is easier to absorb and receive information and canplay an active role in overcoming health problems and other family members.

The Relationship between Profession/Workand Medication Compliance

Based on the bivariate analysis results, there was no significant association between work and compliance in undergoing hypertensiontreatment at Sukaramai Medan Health Center with a value of p = 0.802. The results of this studyare reinforced by a study conducted by Tisna (2009) which showed that there was no association between the work and adherence of treatment of hypertensive patients with a value ofp = 0.299.[12] Contrary to the results of this study, a study conducted by Su-Jin Cho (2014) stated that workhas a significant association with non-compliance with antihypertensive use. (*p*=0,006).13 The difference in the results of this study occurred dueto the difference in the number of samples that are quite large. In addition, the difference in the results of this study was also influenced by the type of work and the duration of different working hours. In the study conducted by Su-Jin Cho, most respondents worked in the formal sector and were bound by working hours, so the opportunity to come to health facilities became limited; according to this study, those who workedmostly in non-formal sectors such as farmers/ workers, drivers, and traders who were not boundby working hours.

Based on research in the field, it was foundthat there was no difference in compliance between respondents who worked or did not work. This difference is absent because most of the respondents who work are in the non-formal sector with no specified work time limit. Respondents who work still have the same opportunity and availability of time as respondents

who do not work to do hypertensiontreatment.

The Relationship between Long Suffering from Hypertension and Medication Compliance

The study results found that people with hypertension who seek treatment at Sukaramai Medan Health Center are more dominated by patients suffering from hypertension ≤5 years. The number of patients is 36 people compared to28 patients with hypertension > five years. Basedon the results of this study, patients who have experienced hypertension ≤ 5 years have lower compliance, while patients who have experienced hypertension more than five years more obedient in carrying out antihypertensive treatment therapy. At the same time, this is in linewith the research of Mutmainah (2010).[14] This is because patients who have hypertension under five years do not obediently take antihypertensivedrugs because if their blood pressure has dropped, they stop the antihypertensive treatment therapy. So in the short term, their blood pressure tends to rise again due to non- routine hypertension treatment therapy. People with hypertension under five years old do not regularly take drugs due to the length of theperiod of taking the drug, while the recovery ratethat has been achieved is not as expected.

The Relationship between Health InsuranceParticipation and Medication Compliance

The results of the bivariate analysis showeda significant association between health insurance participation and compliance in undergoing hypertension treatment with a p- value of 0.0. The results of this study are in line with research conducted by Timothy L. Lash et al.(2006) of Boston University's Department of Epidemiology, where many patients who adhere to treatment have health insurance.

Contrary to the results of this study, a studyconducted by Su-Jin Cho (2014) stated that this type of insurance (with health insurance and without health insurance) is related to non-compliance with antihypertensive use in Korean medical panel hospitals. In the study, 91% of respondents had health insurance, while 9% did not have health insurance.[13] Differences in the results of this study can be caused by sample differences and socio-economic differences inthe country. In Indonesia, most residents' health insurance is relatively new because term insurance/health insurance has not become a general treasury. However, in the study, Su-Jin Cho majority of respondents (91%) already havehealth insurance and are aware of the benefits ofits use; this is also supported by the level of economy and knowledge of the public that is more advanced than the people in Indonesia. Based on studies in the field, the drug delivery system conducted by Sukaramai MedanHealth Center is that patients come with a drug- taking period of 3 days for both patients who do not have health insurance or health insurance owners (BPJS). That causes no difference incompliance between patients who own healthinsurance or do not have health insurance.

The Relationship between Knowledge Leveland Medication Compliance

According to WHO (2002), knowledge can be interpreted as a collection of information that is understood, obtained from the learning processduring life. It can be used at any time as a meansof adjustment, both to ourselves and the environment.[15] Knowledge of an object can be gained from the experience of teachers, parents,friends, books, and mass media. people with hypertension can be a good teacher for him. The knowledge possessed will affect thecompliance of people with hypertension inundergoing treatment. Patients with high knowledge tend to be more obedient to treatmentthan low-knowledge sufferers.[7]

The results of the bivariate analysis in this study showed no relationship betweenknowledge of hypertension and compliance in undergoing hypertension treatment (p =0.062) atSukaramai

Medan Health Center. The results of this study are in line with those conducted by Abere Dessie Ambaw (2012), who showed that knowledge does not influence the use of antihypertensive drugs. The research is includedin descriptive research seen from the summary ofexisting data. While this study is analytical research was tested up to the bivariate stage so that it is known the relationship.[15]

Contrary to the results of this study, research conducted by Ekarini (2011) showed a relationship between knowledge and medication adherence in hypertensive patients with (p = 0.002). In his research, Ekarini mentioned that the relationship between knowledge and Medication Compliance is due to the efforts that have been made by health workers, including socializing the importance of undergoing regular treatment for hypertensive clients, health counseling about hypertension, providingbrochures about hypertension. That is indirectly able to increase the knowledge of hypertensive clients to motivate hypertensive clients to undergo treatment regularly.[16]

According to research on the ground, out ofthe 67.9% of respondents who had a low level ofknowledge, 39.62% did not comply in undergoingtreatment. While of the 32.07% of respondents with high knowledge, 15.09% did not comply in undergoing treatment. So there is no significant relationship between knowledge and the level of compliance of hypertension sufferers in Sukaramai Medan Health Center. That can be associated again with the system of giving antihypertensive drugs at Sukaramai Medan Health Center, which is only given for three daysso that it requires the patient to re-control every three days; this causes the patient to be disturbedby work and time so that it does not come for treatment every three days.

Based on the research conducted, thereis no relationship between medical adherence in hypertensive patients with gender, education, employment, long-suffering from hypertension, and the level of knowledge at Sukaramai Medan Health Center. The advicefrom researchers to the relevant agencies is to provide media containing information about the implementation of hypertension in the examination room to increase public knowledge about hypertension, re-recording for patients with hypertension health insurance (BPJS) holders to participate in the chronic disease management program (PROLANIS) carried out every month, Providing health education to people with outpatient hypertension at Sukaramai Medan Health Center and health education should not only be given to people with hypertension but also families and people closest to people with hypertension to participate in reminding and providing motivation to people with hypertension.

There needs to be a study that analyzes the factors in this study, equipped with qualitative or quasi-experimental methods related to the compliance of people with hypertension in undergoing treatment, the need for the addition of other variables relatedto compliance with hypertension treatment such as accompanying disease factors, family hypertension history factors.

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