

# RELATIONSHIP OF KNOWLEDGE WITH COMPLIANCE OF PATIENTS WITH HYPERTENSION TO THE USE OF ANTIHYPERTENSIVE MEDICINES IN OUTSTANDING INSTALLATIONS RSUD MM DUNDA, GORONTALO REGENCY

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## ABSTRACT

Hypertension is a cardiovascular disease characterized by high blood pressure. Hypertension if not treated properly can cause complications. Barriers to the treatment of hypertension can be caused by several factors, including non-compliance and lack of knowledge. This research aims to know the level of knowledge with the adherence of patients with hypertension to the use of antihypertensive drugs in the outpatient installation of RSUD MM Dunda, Gorontalo Regency.

In this study, the author uses a cross sectional analysis research design. The population in this study were all patients with hypertension at the MM Dunda Hospital, Gorontalo Regency as many as 221 people with the Non Probability Sampling technique with Purposive Sampling Technique. Independent Variables in this study is the knowledge of hypertension sufferers and the dependent variable in this study is adherence to taking antihypertensive drugs, the instrument in this study used a questionnaire. Data analysis used the Spearman Rank test with a significant level of 0.05.

Based on the research, it can be seen that respondents who have sufficient knowledge 36 (64.3%) and 20 (35.7%) have good knowledge, in respondents' compliance with taking anti-hypertensive drugs 28 (50.0%) are not obedient, 21 (37.5%) Moderately obedient, 7 (12.5%) are obedient in taking the drug.

The results of the Chi-Square test show the value of probability p value 0.393 ( $p > 0.05$ ), then  $H_1$  is rejected and  $H_0$  is accepted, which means that there is no relationship between knowledge and adherence of patients with hypertension to the use of antihypertensive drugs in the outpatient installation of RSUD MM Dunda, Gorontalo Regency.

**Keywords:** Knowledge, compliance, against the use of anti hypertension drugs

## INTRODUCTION

Hypertension is one of the diseases that many Indonesian people suffer from. It occurs due to one of the problems of lifestyle changes such as smoking, consuming foods with too high salt content, lack of physical activity, consuming alcohol and stress.

Hypertension is also thought to be the cause of various serious diseases and their complications. The process of treating hypertension requires patient compliance to take medication. Compliance with taking drugs in patients with hypertension itself is very low, for example complying with the recommendations for treatment

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given by doctors which will have an impact on the emergence of side effects from these drugs, this is due to lack of education about using drugs correctly, hypertension sufferers should be given education regarding how to get medicine, how to use medicine, how to store medicine and how to properly dispose of medicine. [20]

According to the World Health Organization (WHO) in 2012, hypertension contributes to nearly 9.4 million deaths from cardiovascular disease every year. It also increases the risk of coronary heart disease by 12% and increases the risk of stroke by 24%. [20]

Data from the Global Status Report on Noncommunicable Diseases 2010 from WHO, states that 40% of developing economic countries have hypertension sufferers, while only 35% of developed countries have hypertension. from 40% from 1990 to 2010. [11]

Data from the Indonesian Ministry of Health shows that the prevalence of hypertension in Indonesia reaches 31.7% of the population aged 18 years and over. About 60% of people with hypertension end up in stroke and this disease affects almost 25% of the world's adult population. The rest causes heart disease, kidney failure, and blindness. Hypertension is also the 3rd cause of death in Indonesia at all ages with a mortality proportion of 6.8 %. [19]

This phenomenon is caused by changes in people's lifestyles globally, such as the easier it is to get ready-to-eat food, which reduces the consumption of fresh vegetables and fiber, then the consumption of salt, fat, sugar, and calories continues to increase so that it plays a major role in increasing the incidence of hypertension. [1]

Based on the 2013 Basic Health Research data, Gorontalo province ranks 5th out of 34 provinces, as the province with the highest number of hypertension.

For the Sulawesi archipelago itself, Gorontalo province ranks first as the province with the highest number of hypertension sufferers, with a total presentation of 29.0%, of which out of 1,134,498 people, 33,542 people suffer from hypertension in Gorontalo province. [4]

Treatment of hypertension is influenced by the patient's adherence to taking high blood pressure medication and making lifestyle modifications. [7]

Compliance of hypertensive patients in undergoing hypertension treatment is very necessary in order to obtain a better quality of life for hypertensive patients. Factors that can cause non-adherence to taking medication include the experience of drug users with side effects and drug convenience, the efficacy of the drug or the rate of cure that has been achieved, communication between patients and doctors or pharmacists, giving positive or negative attitudes to drug users, factors economy, the patient's belief or perception of the disease and its treatment, the factor of boredom in using drugs continuously due to the length of time the patient suffers from hypertension. [11]

Non-adherence of hypertensive patients to the therapy program is a big problem in hypertensive patients. It is estimated that 50% of them stop treatment within 1 year of recovery. Adequate blood pressure control can only be maintained at 20%, but if the patient actively participates in a therapy program, including self-monitoring of blood pressure and diet, adherence tends to increase because immediate feedback can be obtained as the patient becomes more compliant in repeat visits. [11]

Non-adherence to taking medication can be seen related to the dose, how to take medication, time to take medication and the period of taking medication that is not in accordance with the rules. Some of the impacts of patient non-compliance in

taking drugs are drug side effects that can harm the patient's health. The impact of non-adherence to taking medication can cause complications such as organ damage including the brain, because uncontrolled hypertension can increase the workload of the heart which will cause an enlarged heart thereby increasing the risk of heart failure. [11]

The success of a therapy is not only determined by the diagnosis and selection of the right drug, but also by the patient's compliance to carry out the therapy. Success in controlling high blood pressure is a joint effort between the patient and the doctor who treats it. Compliance of a patient suffering from hypertension is not only seen based on compliance in taking antihypertensive drugs but also requires the patient's active role and willingness to check his health to the doctor according to the specified schedule and recommended healthy lifestyle changes. [12]

There needs to be an increase in the knowledge of hypertensive patients on the pattern of drug use. In everyday life, many people with hypertension do not pay attention to the pattern of using the drugs they take, so that when blood pressure rises, the patient is at risk of dying, or at least becoming one of the patients who must be hospitalized. MM Dunda Hospital, Gorontalo Regency, is a referral hospital in the Gorontalo Regency area.

Based on the medical record data of RSUD Dr. MM Dunda Limboto in 2014 the number of visits by hypertension patients in outpatient installations ranks 4th in the list of the 10 most diseases with a total of 789 visits. Meanwhile, in 2015 hypertension rose to 3rd place with the number of visits increasing to 945 visits. And in 2016 itself hypertension entered the list of 10 most diseases ranks 2nd with the number of visits reaching 800 visits. For inpatient installations in 2014 the number of hypertensive patients reached 246, in 2015 and 2016 the number of

hypertensive patients decreased to 182 and 124 patients, respectively. [6] While the data received by the medical record section of RSUD MM.

### **Definition of Knowledge**

Knowledge is the result of knowing, and this occurs after people have sensed a certain object. Sensing occurs through the human senses, namely the senses of sight, hearing, smell, taste, and touch. Most of human knowledge is obtained through the eyes and ears. [14]

The knowledge referred to in this study is the knowledge of hypertensive patients on adherence to taking antihypertensive drugs. The knowledge possessed by people with hypertension is largely determined by the education they have. Because with good education, people with hypertension can receive all information from outside, especially about the importance of regularly taking antihypertensive drugs. Knowledge or cognitive is a very important domain in shaping one's actions (overt behavior). Knowledge in the cognitive domain, namely:

Know (know) is defined as remembering a material that has been studied previously into knowledge at this level is recalling something specific from all the material studied or stimuli that have been received, therefore, knowing is the lowest level of knowledge.

Understanding (comprehension) is defined as an ability to explain correctly about known objects and can interpret the material correctly.

Application is defined as the ability to use the material that has been studied in actual situations or conditions, including the application or use of laws, formulas, methods, principles, and so on in other contexts or situations.

Analysis (Analysis) is an ability to describe the material or into components, but still in one organizational structure

and still have something to do with each other.

Saintesis (Synthesis) refers to an ability to put or connect parts in a new whole form, in other words, synthesis is an ability to construct new formulations from existing formulations.

Evaluation is related to the ability to justify or evaluate a material or object. The assessment is based on a self-determined criterion or using existing criteria.

#### Factors Affecting Knowledge

Sanifah, 2018 states that several factors affect knowledge, namely:

##### **Level of education**

Education is an effort to provide knowledge in order to increase positive behavior change. The higher the level of education, it will result in a basic awareness of the importance of science. This can trigger someone to be active in increasing knowledge.

##### **Information**

Someone who has more sources of information will have broader knowledge, through electronic media and mass media.

##### **Culture**

Human behavior or a group of humans in meeting needs which include attitudes and beliefs.

##### **Experience**

Something that has been experienced by someone will increase knowledge about something that is informal.

##### **Socio-Economic**

The level of a person's ability to meet the needs of life, the higher the socioeconomic level, the higher the level of knowledge with the wider way of getting information.

##### **Sources of Knowledge**

Sources of human knowledge are influenced by several things, including:

##### **Tradition**

Tradition is a knowledge base in which everyone is not recommended to start trying to solve the problem.

##### **Authority**

Dependence on an authority cannot be avoided because it cannot automatically become an expert in overcoming every problem faced.

##### **Knowledge Measurement**

Measurement of knowledge can be done by interviewing asking about the content of the material to be measured from the research subject or respondent. The depth of knowledge that you want to know or measure is adjusted to the levels.

##### **Someone's experience**

Each person's experience may be limited to making valid conclusions about the situation and one's experience is colored by subjective judgments.

##### **Trial and error**

In solving a problem, success in using alternative solutions through "trial and error".

##### **Logical reason**

Thought is an important component in the scientific approach, but rational reasoning is very limited because the validation of deductive reasoning depends on information

##### **How to Measure Knowledge**

Measurement of knowledge can be done by providing a set of test tools/questionnaires about the object of knowledge to be measured. Furthermore, the assessment of each correct answer to each question is given a value of 1 if incorrect is given a score of 0. [11]

##### **Definition of Compliance**

Compliance is a form of behavior that arises as a result of the interaction between health workers and patients so that patients understand the plan with all its consequences and agree to the plan and implement it. [24]

Types of non-adherence to drug therapy, including failure to redeem prescriptions, missed doses, errors in the timing of drug consumption, and premature drug discontinuation. Non-compliance will result in the use of a drug

that is less. Thus, the patient loses the benefit of therapy and may result in the condition gradually worsening. Non-compliance can also result in the overuse of a drug. If the dose is used in excess or if the drug is taken more often than intended, there is an increased risk of adverse reactions. This problem can develop, for example a client finds out that he has forgotten one dose of medication and doubles the next dose to fill it. [24]

Factors of non-adherence to treatment according to (Toulasik, 2019).

Lack of understanding of the patient about the goals of treatment.

The main reason for non-adherence is lack of understanding about the important benefits of drug therapy and the possible consequences if drugs are not used according to instructions.

Does not understand the patient about the importance of following the prescribed treatment rules

Likes to get medicine outside the hospital

Patients will be more reluctant to comply with instructions for use of expensive drugs, the cost of premature discontinuation of use as an excuse for not redeeming a prescription.

Obedient behavior is influenced by three main factors according to Toulasik, 2019 which include:

#### **Predisposing factors**

These factors include people's knowledge and attitudes towards health, beliefs, values, beliefs and so on. These factors affect a person's behavior, including health behavior.

#### **Supporting factors**

Factors that allow behavior to occur. These factors include the physical environment, the availability of health facilities or advice.

#### **driving factor**

Factors that reinforce the occurrence of behavior change. These factors include

the attitudes and practices of health workers and community leaders.

Factors that support compliance. There are several factors that support obedience according to Toulasik, 2019:

#### **Education**

Education is an activity, a human effort to improve personality or the process of changing behavior towards maturity and perfection of human life by fostering and developing the potential of his personality, which is in the form of spiritual (creation, taste, intention) and physical.

#### **Accommodation**

An effort should be made to understand the client's personality traits that may affect compliance. Independent clients must be actively involved in the treatment program.

#### **Modify environmental and social factors**

Building social support from family and friends is very important, support groups can be formed to help understand adherence to the treatment program.

#### **Changes in therapy model**

The treatment program can be made as simple as possible and the patient is actively involved in making the program.

Increase the interaction of health professionals with patients

It is important to provide feedback to patients after obtaining diagnostic information.

Compliance with taking medication according to Maryanti, 2017:

#### **Right dose**

Giving excessive doses, especially for drugs with a narrow range, will be very risky for side effects. Conversely, a dose that is too small will not guarantee the achievement of the expected therapeutic level.

#### **How to give medicine**

The method of drug administration requires pharmacokinetic considerations, namely the method or route of

administration, large dose, frequency of administration, to choosing the method of administration that is easiest for the patient to follow, safe and effective for the patient.

#### **Drug administration time**

The method of administering the drug should be as simple and practical as possible so that it is easy for patients to follow. The more often the frequency of drug administration per day, the lower the level of adherence to taking medication.

#### **Medication period**

The duration of drug administration must be appropriate for each disease.

### **RESEARCH METHODS**

#### **Research Type and Design**

This type of research is analytic using a quantitative approach with an analytical approach that aims to: This study aims to determine the relationship between knowledge and adherence of hypertension patients to the use of antihypertensive drugs.

#### **Research design**

The type of research used is Cross Sectional Analysis

#### **Time and place**

This research was conducted in June - August 2021 at the internal poly room of the MM Dunda Hospital, Gorontalo Regency.

#### **Tools and materials**

The tool used to collect data is a questionnaire sheet. There are two types of questionnaires, a knowledge questionnaire about hypertension and an antihypertensive medication adherence questionnaire. The knowledge questionnaire contains two alternative correct and incorrect answers. The compliance questionnaire contains two alternative yes and no answers. The materials used is the answer of the test subject.

#### **Research Sample**

The sample used in this study were some hypertensive patients at MM Dunda Hospital, Gorontalo Regency who met the inclusion criteria.

The inclusion criteria are as follows: (1) Patients who have been diagnosed by doctors as hypertension, (2) Willing to be respondents, (3) Hypertension with comorbidities or not, (4) Cooperative. Meanwhile, the exclusion criteria are: Not willing to be a respondent. The sample used was 56 people.

#### **Sampling technique**

In this study, the sampling method used is Non Probability Sampling with the type of Purposive Sampling Technique. According to Sugiyono, 2015 the notion of Non Probability Sampling is a technique that does not provide equal opportunities or opportunities for each element or member of the population to be selected as a sample. Meanwhile, purposive sampling is a sampling technique with certain considerations. To determine the size of the sample if the subject is less than 100, it is better to take all so that the research is a population study. If the subject is taken all over so the population study. If the subject is larger it can be taken between 20-25%.

#### **Research Instruments**

The research instrument or tool used is a questionnaire. This questionnaire is divided into 2 parts, namely: (1) A medication adherence questionnaire consisting of 8 questions. All questions in the questionnaire were prepared using the Guttman scale, (2) The hypertension knowledge questionnaire consisted of 15 questions. All questions in the questionnaire were prepared using the Guttman scale.

#### **Data analysis**

To determine the relationship between variables, Spearman Rank statistical test was carried out with a significant level of  $<0.05$  using SPSS 16

for windows to determine whether there was a relationship between two variables, namely independent variables and related variables with nominal and ordinal scales at a significance level of <0.05.

After being presented, they are grouped according to Nursalam, 2011 namely:

Majority	: 90-100%
Most of the	: 66-89%
More than half	: 51-65%
Half	: 50%
Almost half	: 26-49%
Fraction	: 25%

## RESULTS AND DISCUSSION

**Table 1 Characteristics of Respondents Based on Gender in MM Dunda Hospital, Gorontalo Regency**

No.	Gender	Amount	Percentage(%)
1.	Man	32	57.15
2.	Woman	24	42.85
<b>Amount :</b>		<b>56</b>	<b>100.0</b>

Source: Respondent's Questionnaire at MM Dunda Hospital, Gorontalo Regency, 2021

Characteristics of respondents based on gender according to the results of the study described in table 1, it can be seen that at most 32 respondents (57.15%) male respondents and 24 female respondents (42.85%). This statement is supported by Louisa, Sulistiyani, & Joko, 2018 which said that the ratio of the increase in blood pressure in men reached 2.29 mmHg for an increase in systolic blood pressure and 3.76 mmHg for an increase in diastolic blood pressure. This is because the resting heart rate and cardiac index are lower in men and higher peripheral pressures when compared to women.

**Table 2 Characteristics of Respondents by Age at MM Dunda Hospital, Gorontalo Regency**

No.	Age	Amount	Percentage (%)
1.	30 – 40 Years	7	12.5
2.	40 – 50 Years	14	25
3.	50 – 60 Years	17	30.35

4.	>60 Years	18	32.15
<b>Amount :</b>		<b>56</b>	<b>100.0</b>

Source: Respondent's Questionnaire at MM Dunda Hospital, Gorontalo Regency, 2021

Characteristics of respondents based on the age of respondents according to the results of the study described in table 8, it can be seen that at most ages >60 years, namely 18 people (32.15%) and at least less than 31-40 years, namely 7 people (12.5%). This result is in line with the opinion of Novitaningtyas, 2014 confirming that with increasing age, the risk of someone experiencing hypertension at the age of 60-64 years also increases the risk of hypertension by (2.18) times, age 65-69 years (2.45) and age > 70 years 2.97 times. This happens because at that age the large arteries lose their flexibility and become stiff because of that blood at each heartbeat is forced to pass through the blood vessels that are narrower than usual and cause an increase in blood pressure [15].

**Table 3 Characteristics of Respondents Based on Education at MM Dunda Hospital, Gorontalo Regency**

No.	Education	Amount	Percentage(%)
1.	SD	8	14.28
2.	junior high school	13	23.22
3.	high school	32	57.15
4.	PT	3	5.35
<b>Amount :</b>		<b>56</b>	<b>100.0</b>

Source: Respondent's Questionnaire at MM Dunda Hospital, Gorontalo Regency, 2021

Characteristics of respondents based on education level that most of the 32 respondents (57.15%) were the last high school education level. Meanwhile, in the previous study, according to Ilham et al., the last average level of education in 2020 was more high school education (56.3%). Based on research conducted by Ilham et al, 2020 stated that the level of Education alone is not enough to be able to control hypertension completely, without being accompanied by an attitude with an awareness of the importance of

controlling hypertension which will be accompanied by concrete actions in everyday life. One of the efforts to control hypertension is knowing the symptoms of hypertension, knowing the factors that can control oneself. If people with hypertension do not control their blood pressure, so that hypertension occurs, it will have an impact on the occurrence of stroke.

**Table 4 Distribution of the frequency of knowledge of patients with hypertension in MM Dunda Hospital, Gorontalo Regency**

Patient Knowledge	Frequency	Percentage (%)
Enough	36	64.3
Well	20	35.7
<b>Total</b>	<b>56</b>	<b>100.0</b>

Source: Primary Data, 2021

The grouping of categories of knowledge levels of patients with hypertension shows that the level of knowledge of respondents about hypertension, namely (64.3%) patients with hypertension at MM Dunda Hospital, Gorontalo Regency who became respondents in this study was sufficient. The results of the study on the level of knowledge showed that from 56 respondents there were 20 people (35.7%) who had a level of knowledge in the good category. This is in accordance with Taufik's research, 2021 which states that patients with sufficient knowledge (43.6%) also said that there was a need to increase education related to the use of antihypertensive drugs through health promotion. correct antihypertensive.

There is a tendency that the less knowledge will have an impact on the more frequent recurrence of hypertension, thus knowledge can influence respondents in preventing hypertension recurrence. Based on research conducted by Jepson, 2006. This is caused by many factors that affect the value of blood pressure, although the patient has been diligent in taking medication but internal and

external factors will greatly affect. Internal factors such as age, the older the age the arteries will lose elasticity and can increase blood pressure; stress; excess emotion; patient's depressive state. External factors such as problems from outside, work, obesity, eating habits, weather, or after doing an activity such as smoking and running.

Knowledge is defined as the level of patient behavior in carrying out behavioral hypertension treatment recommended by doctors and others, and controlled hypertension is influenced by the level of knowledge of hypertensive patients about the disease. [2]

Knowledge that must be known by hypertensive patients is the meaning of hypertension, symptoms of hypertension, risk factors, lifestyle and the importance of taking regular and continuous treatment for a long time and knowing the dangers that arise when not taking medication. [3]

The majority of respondents who do not take education can be one of the causes of lack of knowledge. Susanti, et al, 2012 stated that information can help speed up someone to acquire knowledge. Information is one of the factors that affect the knowledge of respondents, another factor is the experience gained by respondents while suffering from hypertension will also affect the level of knowledge of respondents about hypertension management. Budiman & Riyanto, 2013 states that experience is a source of knowledge obtained from repeating previously acquired knowledge by repeating the knowledge gained in solving problems encountered in the past.

**Table 5 Distribution of the frequency of patient compliance in taking antihypertensive drugs at MM Dunda Hospital, Gorontalo Regency**

Patient Compliance	Frequency	Percentage (%)
Not obey	28	50.0
Obedient enough	21	37.5



Obey	7	12.5
<b>Total</b>	<b>56</b>	<b>100.0</b>

Source: Primary Data, 2021

The grouping of hypertensive patients' level of adherence to the use of antihypertensive drugs showed that it could be seen that the patients were not obedient to the use of antihypertensive drugs, as many as 28 respondents (50.0%). This is in accordance with Richard's research, 2018 which states that the highest level of adherence to taking antihypertensive drugs is non-adherent patients (55%) also saying that compliance is influenced by several factors that make the patient's ability to follow optimal treatment often be disrupted by several barriers, including : socioeconomic factors, health care system, disease characteristics, disease therapy and patient-related factors. This shows that there is no patient awareness of the use of antihypertensive drugs. seen that adherence to taking medication greatly affects a person in preventing hypertension. The more obedient or routine a person is to hypertension medication, the more aware he will be that preventing hypertension is very beneficial for health, with this awareness it will form a concern, especially for one's own health in preventing hypertension. Patients still need to be given the right information regarding the use of drugs so that they can have a big influence on the patient's mindset and attitude. That way, the patient will take the drug obediently according to the indication, dose, interval of taking medication. with this awareness will form a concern, especially for one's own health in preventing hypertension. Patients still need to be given the right information regarding the use of drugs so that they can have a big influence on the patient's mindset and attitude. That way, the patient will take the drug obediently according to the indication, dose, interval of taking medication. with this awareness will form

a concern, especially for one's own health in preventing hypertension. Patients still need to be given the right information regarding the use of drugs so that they can have a big influence on the patient's mindset and attitude. That way, the patient will take the drug obediently according to the indication, dose, interval of taking medication.

According to research from Padila, 2012 Types of non-adherence to drug therapy, including failure to redeem prescriptions, neglecting doses, errors in the timing of drug consumption, and premature drug discontinuation. Non-compliance will result in less use of a drug. Thus, the patient loses the benefit of therapy and may result in the condition gradually worsening. Non-adherence can also result in the overuse of a drug. If the dose is used in excess or if the drug is taken more often than intended, the risk of an adverse reaction increases. This problem can develop, for example, a client discovers that he has forgotten to take his medication and doubles the next dose to complete his medication.

Compliance is a form of behavior that arises as a result of the interaction between health workers and patients so that patients understand the plan with all its consequences and agree to the plan and implement it. [8]

Compliance with taking medication for hypertension sufferers in Indonesia who have had hypertension for 1-5 years tend to be more compliant with the process of taking medication, while patients who have experienced hypertension for 6-10 years tend to have poorer medication adherence due to long suffering, work, boredom. taking medication, lack of support from family. [25]

From the results of this study, the probability value of p value is 0.393 ( $p > 0.05$ ), then  $H_1$  is rejected and  $H_0$  is accepted, which means that there is no

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relationship between knowledge and adherence of patients with hypertension to the use of antihypertensive drugs in the outpatient installation of RSUD MM Dunda, Gorontalo Regency.

### **CONCLUSION**

The level of knowledge of hypertension in the MM Dunda Hospital, Gorontalo Regency, showed that 64.3% of patients with hypertension who were respondents in this study were sufficient.

The level of adherence of hypertensive patients to the use of antihypertensive drugs shows that the analysis above shows that the respondents in this study were 50.0% non-adherent.

There is no relationship between knowledge and adherence of patients with hypertension to the use of antihypertensive drugs in the outpatient installation of MM Dunda Hospital, Gorontalo Regency.

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