**Indonesian Journal of Global Health Research**
Volume 8 Number 2, April 2026
e-ISSN 2715-1972; p-ISSN 2714-9749
https://jurnal2.globalhealthsciencegroup.com/index.php/IJGHR

# PATIENT COMPLIANCE WITH TAKING ORAL ANTIHYPERTENSIVE BY METHODS PILL-COUNT AND MMAS-8 AT THE CLINIC

**Ferika Indrasari*, Mutiara Desy Fitria, Sri Suwarni, Nanda Dwi Akbar**
Sekolah Tinggi Ilmu Farmasi Nusaputera, Jl. Medoho III No.2, Siwalan, Gayamsari, Semarang, Central Java 50162, Indonesia
*ferikaindrasari89@gmail.com

**ABSTRACT**

In Indonesia, hypertension occupies the fourth highest position as a deadly disease. The prevalence of hypertension in Central Java reached 37.57% based on measurements for the ⩾18 year old population. Hypertension uncontrolled if not treated immediately can cause complications disease. Complications can be prevented by dutifully taking medication. Adherence to taking medication was what really determines the success of treatment therapy. Compliance Drink medicament can measured with using method Pill-Count and self report. Method Pill-Count was carried-out by calculating the patient's remaining medication. Meanwhile self report thiswas carried-out by giving an MMAS-8 questionnaire that consist of 8 written list of questions to the patient. This study aims to determine the level of patient adherence to drug use oral antihypertensives by method pill- count in hypertensive patients in the Clinic and correlation between methods Pill-Count and MMAS-8. This research is a type of non-experimental research with observational methods that are quantitatively correlative with design data collection prospective. Sampling techniques using techniques total sampling. The number of samples used was 31 samples. Source data taken from the questionnaire sheet and analysis used in this research is analysis univariate, analysis bivariate, test chi-square and correlation test spearman rank. Validity was assessed using Pearson correlation with r-table = 0.279, and reliability was evaluated using Cronbach's alpha. The results of the study obtained that the patient's level of compliance from the test chi- square has a sig value of 0.008<0.05 which means the patient's level of compliance with using oral antihypertensive drugs using the method pill-count and MMAS-8 in the clinic is classified as compliant. Test spearman rank shows that there is a relationship between the level of adherence to taking antihypertensive drugs and the method Pill-Count and MMAS-8 which has a sig value result of 0.008 < 0.05. The results of this study show that patient compliance on usage medicament oral antihypertensives in clinic classified as a medium level of relationship.

Keywords: clinic; compliance, hypertension; MMAS-8; pill-count

**How to cite (in APA style)**
Indrasari, F., Fitria, M. D., Suwarni, S., & Akbar, N. D. (2026). Patient Compliance with Taking Oral Antihypertensive by Methods Pill-Count and MMAS-8 at the Clinic. *Indonesian Journal of Global Health Research*, *8*(2), 1167–1178. https://doi.org/10.37287/ijghr.v8i2.894.

## INTRODUCTION

Many cases of death are caused by various factors and types of disease. One of the main causes of death in the world is high blood pressure or hypertension. Hypertension is the number one cause of death in the world (Rocom, 2024). In Indonesia, hypertension occupies the fourth highest position as a deadly disease. The prevalence of hypertension in Central Java reached 37.57% based on measurements for the ≥18 year old population. Based on the Central Java Health Profile (2021), it is explained that the highest cases of hypertension and is ranked first in Semarang City, reaching 67,101 cases and the prevalence is 19.56%. This cannot be separated from the unhealthy lifestyle of the population. Indonesians themselves, especially young people, still do not adopt a healthy lifestyle in their daily lives. This habit can trigger hypertension at a young age (Ida, 2023).

Hypertension is non-communicable diseases or NCDs with serious medical conditions are characterized by high blood pressure and can increase the risk of other diseases, such as: heart, brain, kidney and other diseases. According to WHO, blood pressure can be said to be high if the systolic blood pressure is above 140 mmHg and the diastolic blood pressure is above 90mmHg

(WHO, 2023). Symptoms experienced by hypertension sufferers include dizziness, restlessness, headaches, tightness and chest pain. To find out whether your blood pressure is high or not, you can use a tensimeter at a health agency or buy it to regularly monitor your blood pressure personally (WHO, 2023). There are two risk factors that cause hypertension, namely risk factors cannot be changed and risk factors can be changed. Risk factors cannot be changed are risk factors inherent in hypertensive sufferers and cannot be changed, these factors include age, gender and genetics. Meanwhile, risk factors that can be changed are risk factors caused by unhealthy behavior from hypertension sufferers, including smoking, a low fiber diet, excessive salt consumption, lack of physical activity, stress, excess weight, and consuming alcohol (Ministry of Health, 2018).

Hypertension can be controlled if you carry out healthy living behavior with 'OBEDIENCE', namely carrying out regular health checks and in accordance with the doctor's recommendations. Adherence to taking medication is a form of behavior shown by the patient when taking medication according to the recommended schedule and dosage of medication, it is said to be obedient if the patient takes medication according to the rules and at the right time, it is said to be non-compliant if the patient does not take the medication according to the rules and the recommended time (Rusmawaty, 2022). Taking antihypertensive drugs dutifully can control blood pressure and avoid further complications. The purpose of administering the drug is to achieve the desired effect with little adverse effect. According to JNC VIII, there are various types of drugs recommended to lower blood pressure, namely ACE drugs Inhibitors (Captropril, Enalapril, Ramipril, and Lisinopril), Angiotensin Receptor Blockers (Eprosartan, Candesartan, Losartan, Valsartan, and Irbesartan), Beta Blockers (Atenolol, Bisoprolol, and Metoprolol), Calcium Channel Blockers (Amlodipine, Diltiazem Extended Release), and Thiazide Type Diuretics (Bendroflumethiazide, Chlorthalidone, Hydrochlorothiazide, and Indapamide) (Muhadi, 2016).

Adherent medication can speed up the disease healing process in patients. The level of adherence to taking medication can be influenced by several factors. According World Health Organization (WHO), there are several factors that can influence treatment compliance, including age, gender, education level, employment status, length of hypertension, length of hypertension treatment, level of knowledge, treatment motivation, drug side effects, perception of health services, and support from family (Siti et al., 2020). Measurement of the level of adherence to taking medication using the method pill-count and self report. Method pill count this is done in a way calculate the remaining medication the patient gets during therapy over a certain period of time. Method self report using the MMAS-8 questionnaire, namely eight validated questions to measure the patient's level of compliance (Lusi et al., 2022). This study aims to determine the level of patient adherence to drug use oral antihypertensives by method pill- count in hypertensive patients in the Clinic and correlation between methods Pill-Count and MMAS-8.

## METHOD

This research is a type of non-experimental research with observational methods that are quantitatively correlative with design data collection prospective. This research using methods pill-count and MMAS-8 in the form of a questionnaire sheet which will be distributed to chronic BPJS hypertensive patients without comorbidities who come to the clinic Ambarawa, Semarang Regency. The questionnaire validity test was conducted using eight questions of questionnaire based on the MMAS-for 30 respondents. If the calculated r > r table (0.361) then the question is declared valid. If the calculated r-value < r table (0.361) then the question is declared invalid. The calculated r-value can be seen from the corrected item total correlation column. The questionnaire reliability was tested using Cronbach's Alpha. Value of reliability should indicating a good level of reliability with >0.60 in Cronbach's Alpha. Validity and reliability are both calculated using software SPSS.

Population and samples this study was all patients with chronic BPJS hypertension without comorbidities who came to Ambarawa, Semarang Regency in January-February 2025. The study sample was determined by technique total sampling. The instrument in the study used a

questionnaire sheet which would be distributed to patients suffering from chronic BPJS hypertension without comorbidities at the Ambarawa Clinic, Semarang Regency. The number of samples used was 31 samples. This research has received ethical approval from the Bioethics Commission of the Faculty of Medicine, Sultan Agung Islamic University with decision letter number No.376/XI/2021. All participants provided informed consent before participating. Univariate analysis aims to explain or describe the characteristics of each variable to be studied. Univariate analysis data are primary data collected through the completion of a questionnaire. Bivariate analysis aims to determine the relationship between independent variables and dependent variables. In order to prove whether or not the relationship exists, test statistics are carried out Chi-Square. This test has a degree of confidence used of 95% (α=0.05). Correlation Spearman Rank used to determine the relationship or influence between two ordinal scale variables, namely the independent variable and the dependent variable. The close relationship between the two variables is systematically guided by providing an interpretation of the correlation coefficient. After going through the calculation of the correlation analysis equation Rank Spearman next, it is tested using established criteria, namely by comparing values p calculate with p table.

## RESULT

Hypertension or high blood pressure is one of the diseases that most often appears in developing countries such as Indonesia. Hypertension is also known as a silent killer (*silent killer)* because it rarely has clear symptoms. Hypertension or high blood pressure is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg (Ministry of Health, 2021). A person's blood pressure is said to be high, if after checking the blood pressure twice in the same time and the results of checking the blood pressure are 140 mmHg/90 mmHg or more. Type the class of antihypertensive drugs used in this study were CCB drugs (amlodipine), ARB group (candesartan), diuretic group (hydrochlorothiazide), Ace group *Inhibitors* (Ramipril), and group *beta blockers* (bisoprolol).

Table 1.
Drug Use Data

| Group Medication | Type Medication | f | % |
|---|---|---|---|
| Monotherapy | | | |
| ACEI | Ramipril | 1 | 3,23 |
| ARB | Candesartan | 6 | 19,35 |
| *CCB* | Amlodipine | 2 | 6,45 |
| Combination of 2 Drugs | | | |
| ACEI + CCB | Ramipril + Amlodipine | 3 | 9,68 |
| ARB + Diuretic | Candesartan+ Hydrochlorthiazide | 1 | 3,23 |
| ARB + CCB | Candesartan + Amlodipine | 4 | 12,90 |
| CCB + B-*Blockers* | Amlodipine + Bisoprolol | 1 | 3,23 |
| Combination of 3 Medicines | | | |
| ACEI + CCB + Diuretic | Ramipril + Amlodipine + | 2 | 6,45 |
| ACEI + Diuretic + B-*Blockers* | Hydrochlorthiazide | | |
| ARB + B-*Blockers* + Diuretics | Ramipril + Hydrochlorthiazide + Bisoprolol | 2 | 6,45 |
| ARB+ CCB + Duretic | Candesartan + Bisoprolol + | | |
| CCB + B-*Blockers* + ACEI | Hydrochlorthiazide | 2 | 6,45 |
| CCB + ARB + B-*Blockers* | Candesartan + Amlodipine + | | |
| | Hydrochlorthiazide | 2 | 6,45 |
| | Amlodipine + Bisoprolol +Ramipril | 2 | 6,45 |
| | Amlodipine + Candesartan + Bisoprolol | 3 | 9,68 |

The level of adherence to taking medication in hypertensive patients at the Sari Medika Clinic uses 2 methods, namely methods *pill-count* and MMAS-8. According Osterberg and Blaschke in 2005 in research by Lusi et al., (2022) *Pill-Count* is a method used to measure patient compliance by calculating the patient's remaining medication. Meanwhile *Morisky Medication Adherence Scale 8* (MMAS-8) is a questionnaire used to measure the patient's level of compliance with the treatment being undergone by the patient. This questionnaire consists of 8 questions that will be asked to the patient.

Table 2.
Compliance Rate by Method *Pill-Count*

| Compliance Level | f | % |
|---|---|---|
| Compliant | 28 | 90,32 |
| Non-compliant | 3 | 9,68 |

Table 3.
Compliance Rate Based on the MMAS-8 Method

| Compliance Level | f | % |
|---|---|---|
| High Compliance (8) | 6 | 19,35 |
| Medium Compliance (6-7) | 17 | 54,84 |
| Low Compliance (<6) | 8 | 25,81 |

Table 4.
Test *Chi-Square* On *Pill-Count* And MMAS-8

| Category | Sig value. | Description |
|---|---|---|
| *Pill-Count* MMAS-8 | 0.008 | Significantly compliant |

**Relationship between Drug Compliance Levels and Methods *Pill-Count* And MMAS-8 By Sex**

Table 5.
Test Results *Chi-Square* Between Gender and *Pill-Count*

| Gender | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-compliant | | | |
| | f | % | f | % | | |
| Male | 10 | 32,26 | 1 | 3,23 | 11 | 1,000 |
| Female | 18 | 58,06 | 2 | 6,45 | 20 | |

Table 6.
Test Results *Chi-Square* Between Gender and MMAS-8

| Gender | Compliance Level | | | | | | Total | P-*value* |
|---|---|---|---|---|---|---|---|---|
| | High | | Medium | | Low | | | |
| | f | % | f | % | f | % | | |
| Male | 1 | 3,23 | 8 | 25,81 | 2 | 6,45 | 11 | 0.316 |
| Female | 5 | 16,13 | 9 | 29,03 | 6 | 19,35 | 20 | |

**Relationship between Drug Compliance Levels and Methods *Pill-Count* And MMAS-8 By Age**

Table 7.
Test Results *Chi-Square* Between Age and *Pill-Count*

| Age (years old) | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-compliant | | | |
| | f | % | f | % | | |
| 20 – 45 | 4 | 12,90 | | | 4 | 0.711 |
| 46 – 59 | 13 | 41,94 | 2 | 6,45 | 15 | |
| ≥60 | 11 | 35,48 | 1 | 3,23 | 12 | |

Table 8.
Test Results *Chi-Square* Between Ages With MMAS-8

| Age (years old) | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-compliant | | | |
| | f | % | f | % | | |
| 20 – 45 | 4 | 12,90 | | | 4 | 0.711 |
| 46 – 59 | 13 | 41,94 | 2 | 6,45 | 15 | |
| ≥60 | 11 | 35,48 | 1 | 3,23 | 12 | |

**Relationship between Drug Compliance Levels and Methods *Pill-Count* And MMAS-8 Based on Education**

Table 9.
Test Results *Chi-Square* Between Education and *Pill-Count*

| Education | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-Compliant | | | |
| | f | % | f | % | | |
| Uneducated | 2 | 6,45 | 1 | 3,23 | 3 | 0.402 |
| SD | 6 | 19,35 | 1 | 3,23 | 7 | |
| SMP | 5 | 16,13 | 1 | 3,23 | 6 | |
| SMA/SMK | 13 | 41,94 | | | 13 | |
| DIII/S1 | 2 | 6,45 | | | 2 | |

Table 1.
Test Results *Chi-Square* Between Education and MMAS-8

| Education | Compliance Level | | | | | | Total | P-*value* |
|---|---|---|---|---|---|---|---|---|
| | High | | Medium | | Low | | | |
| | f | % | f | % | f | % | | |
| Uneducated | | | 1 | 3,23 | 2 | 6,45 | 3 | 0.395 |
| SD | 1 | 3,23 | 4 | 12,90 | 2 | 6,45 | 7 | |
| SMP | 3 | 9,68 | 2 | 6,45 | 1 | 3,23 | 6 | |
| SMA/SMK | 2 | 6,45 | 8 | 25,81 | 3 | 9,68 | 13 | |
| DIII/S1 | | | 2 | 6,45 | | | 2 | |

**Relationship between Drug Compliance Levels and Methods *Pill-Count* And MMAS-8 By Occupation**

Table 2.
Test Results *Chi-Square* Between Work and *Pill-Count*

| Job | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-compliant | | | |
| | f | % | f | % | | |
| Housewife | 12 | 38,71 | 1 | 3,23 | 13 | 0.269 |
| Private employees | 6 | 19,35 | | | 6 | |
| Self-employed | 5 | 16,13 | | | 5 | |
| PNS | 1 | 3,23 | | | 1 | |
| Labour | 4 | 12,90 | 2 | 6,45 | 6 | |

Table 3.
Test Results *Chi-Square* Between Jobs and MMAS-8

| Job | Compliance Level | | | | | | Total | P-*value* |
|---|---|---|---|---|---|---|---|---|
| | High | | Medium | | Low | | | |
| | f | % | f | % | f | % | | |
| Housewife | 3 | 9,68 | 7 | 22,58 | 3 | 9,668 | 13 | 0.351 |
| Private employees | 21 | 6,45 | 4 | 12,90 | | | 6 | |
| Self-employed | | 3,23 | 3 | 9,68 | 1 | 3,23 | 5 | |
| PNS | | | 1 | 3,23 | | | 1 | |
| Labour | | | 2 | 6,45 | 4 | 12,90 | 6 | |

**Relationship between Drug Compliance Levels and Methods *Pill-Count* And MMAS-8 Based on Long Suffering**

Table 4.

Test Results *Chi-Square* Between Long Suffering With *Pill-Count*

| Long Suffering | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-compliant | | | |
| | f | % | f | % | | |
| 5 years | 22 | 70,97 | 2 | 6,45 | 24 | 1,000 |
| >5 years | 6 | 19,35 | 1 | 3,23 | 7 | |

Table 14.
Test Results *Chi-Square* Between Long Suffering With MMAS-8

| Long Suffering | Compliance Level | | | | | | Total | P-*value* |
|---|---|---|---|---|---|---|---|---|
| | High | | Medium | | Low | | | |
| | f | % | f | % | f | % | | |
| 5 years | 5 | 16,23 | 12 | 38.71% | 6 | 19.35 | 23 | 0.827 |
| >5 years | 1 | 3,23 | 5 | 16,13 | 2 | 6.45 | 8 | |

**Relationship between Drug Compliance Levels and Methods *Pill-Count* And MMAS-8 Based on Support From Family**

Table 15.
Test Results *Chi-Square* Between Family Support and *Pill-Count*

| Support From Family | Compliance Level | | | | Total | P-*value* |
|---|---|---|---|---|---|---|
| | Compliant | | Non-compliant | | | |
| | f | % | f | % | | |
| Yes | 22 | 70,97 | 2 | 6,45 | 24 | 0.550 |
| No | 6 | 19,35 | 1 | 3,23 | 7 | |

Table 5.
Test Results *Chi-Square* Between Family Support and MMAS-8

| Support From Family | Compliance Level | | | | | | Total | P-*value* |
|---|---|---|---|---|---|---|---|---|
| | High | | Medium | | Low | | | |
| | f | % | f | % | f | % | | |
| Yes | 5 | 16,13 | 13 | 41,94 | 6 | 19,35 | 24 | 0.925 |
| No | 1 | 3,2**3** | 4 | 12,90 | 2 | 6,45 | 7 | |

Relationship between adherence to taking the patient's medication and method *pill-count* and the MMAS-8 questionnaire, carried out by test *spearman rank* , because the data is not normally distributed and to see the direction and strength of the correlation between the two variables. Data test results can be see at table 17.

Table 67.
Test Results *Spearman Rank*

| Category | *Correlation Coefficient* | *Spearman Rank* |
|---|---|---|
| *Pill-Count* | 0.476** | 0.008 |
| MMAS-8 | | |

## DISCUSSION

The use of antihypertensive drugs at the Sari Medika Clinic from this data, the class of antihypertensive drugs most widely used in monotherapy/single doses is the class of drugs Angiotensin II Receptor Blockers (ARB) is the drug candesartan with a total of 6 patients (19.35%). This is because candesartan can reduce the risk of cardiovascular complications and has a long-term action that can be used once a day, so that patients will not feel disturbed when taking the drug. The results of this research are in line with research conducted by Angelia., et al (2023) which states that the class of antihypertensive drugs that are widely used in monotherapy is the drug class Angiotensin II Receptor Blockers (ARB) is the drug candesartan.

In prescription patients, the combination of 2 drugs most widely used is class Angiotensin II Receptor Blockers (ARB) namely candesartan and groups Calcium Channel Blocker namely Amlodipine as much as 4 (12.90%). This is because the combination of candesartan and amlodipine can provide better blood pressure control than monotherapy and has a low risk of side effects compared to other combinations of antihypertensive drugs. The results of this research are in accordance with research conducted by Anis., et al (2020) which stated that the 2 most widely used combinations of antihypertensive drugs are groups Angiotensin II Receptor Blockers (ARB) namely candesartan and groups Calcium Channel Blocker namely Amlodipine.

In prescription patients, the combination of 3 drugs most widely used is class Angiotensin II Receptor Blockers (ARB) namely candesartan, group Calcium Channel Blocker namely Amlodipine, and the Beta group Blockers namely bisoprolol as much as 3 (9.68%). This is because this combination of drugs is often used in patients with hypertension that is difficult to control with monotherapy or a combination of 2 drugs and this combination of drugs can provide more aggressive treatment for severe hypertension. The results of this research are in accordance with research conducted by Dyah., et al (2025) which stated that the 3 most widely used combinations of antihypertensive drugs are drug classes Angiotensin II Receptor Blockers (ARB) namely candesartan, group Calcium Channel Blocker namely Amlodipine, and the Beta group Blockers namely bisoprolol. In conclusion, from these data, the use of antihypertensive drugs at the Sari Medika Clinic is most widely used in drug class monotherapy Angiotensin II Receptor Blockers (ARB) is the drug candesartan with a total of 6 patients (19.35%).

Level of compliance by method pill-count carried out on hypertensive patients at the Sari Medika Clinic. From these data at the compliance level there are 2 categories, namely compliant and non-compliant. The results of this study were for patients who adhered to taking antihypertensive drugs, 28 patients (90.32%). This is because patients have a good awareness of the importance of dutifully taking antihypertensive medication. In the non-adherent category, 3 patients took antihypertensive medication (9.68%). This is because patients often forget and lack awareness in dutifully taking medication. The results of this research are in line with research conducted by Wahyu., et al (2017) which stated that the level of compliance with the method Pill-Count at most on a compliant level. The conclusion was that the compliance rate for taking antihypertensive drugs at the Sari Medika Clinic was the highest, namely in the adherence category, 28 patients (90.32%).

Compliance rate based on the MMAS-8 method carried out on hypertensive patients at the Sari Medika Clinic. The results from this study were for patients suffering from hypertension with a high adherence rate of 6 patients (19.4%). This is because patients have a good awareness of the importance of obediently taking medication. The adherence rate was moderate for 17 patients (54.8%), due to patients often forgetting to take the drug. The adherence rate was low in 8 patients (25.8%), caused by patients often forgetting to take medication, feeling disturbed by the treatment they are undergoing, and feeling bored because they have to take medication every day. The results of this study are in line with research conducted by Tsani., et al (2023) which stated that the compliance rate of patients with MMAS-8 was at most moderate. In conclusion, the most adherence rate for taking antihypertensive drugs at the Sari Medika Clinic was obtained, namely in the moderate compliance rate category, 17 patients (54.8%).

Test results chi-square obtained sig value namely 0.008< α (0.05) which means that the patient's level of compliance with the use of oral antihypertensive drugs using the method pill-count and MMAS-8 at the Sari Medika Ambarawa Clinic, Semarang Regency is classified as compliant. Adherence to taking medication in hypertensive patients needs to be seen how obedient the patient is in taking all the medication given. Test results chi-square obtained a P-value namely 1,000> α (0.05) which means there is no significant relationship between gender and adherence to taking medication by method pill-count. This is because there is no meaningful difference between non-compliant female respondents and non-compliant men. This means that both female and male respondents both lack awareness to comply with the use of antihypertensive drugs. The results of this study are in line with research conducted by Kurniati., et al (2020) which stated that there was no significant relationship between gender and adherence to taking medication using methods pill-count.

Test results chi-square obtained a P-value namely 0.316> α (0.05) which means there is no significant relationship between gender and adherence to taking medication using the MMAS-8 method. This is because the results of the analysis for female respondents had a moderate level of compliance than men because the majority of those seeking treatment were women, but not all

female respondents had moderate compliance. The results of this study are in line with research conducted by Angelia., et al (2023) which stated that there was no significant relationship between gender and adherence to taking medication using the MMAS-8 method.

Test results chi-square obtained a P-value namely 0.711> α (0.05) which means there is no significant relationship between age and adherence to taking medication using the method pill-count. This is because both respondents aged 46-59 years and aged >60 years have almost the same comparison figures and do not differ much in their medication adherence. Age can be related to adherence to taking medication because as we get older, a person will have a greater potential risk of experiencing hypertension. However, this is not in line with the results of the bivariate analysis obtained in this study, but these results do not make age a factor in the only age group not being obedient to treatment. The results of this study are in line with research conducted by Kurniati., et al (2020) which stated that there was no significant relationship between age and adherence to taking medication by method pill-count.

Test results chi-square obtained a P-value namely 0.443> α (0.05) which means there is no significant relationship between age and adherence to taking medication using the MMAS-8 method. This is because patients who are growing in age will experience frustration or rejection of their disease, so they will experience an attitude of disobedience to the recommendations for taking medication from doctors and pharmacists. The results of this study are in line with research conducted by Nia., et al (2020) which stated that there was no significant relationship between age and adherence to taking medication using the MMAS-8 method.

Test results chi-square obtained a P-value namely 0.402> α (0.05) which means there is no significant relationship between education and adherence to taking medication by method pill-count. This is because although a high level of education does not guarantee that patients will comply with taking medication, patients must have awareness of the importance of complying with taking medication so that what they are doing can be successful. The results of this study are in line with research conducted by Angelia., et al (2023) which showed that there was no significant relationship between education and adherence to taking medication by method pill-count.

Test results chi-square obtained a P-value namely 0.395> α (0.05) which means there is no significant relationship between education and adherence to taking medication using the MMAS-8 method. This is because patients who have high education do not necessarily have high compliance in undergoing treatment. However, respondents who had low education also had high compliance in undergoing treatment. The results of this study are in line with research conducted by Angelia., et al (2023) which stated that there was no significant relationship between education and adherence to taking medication using the MMAS-8 method.

Test results chi-square obtained a P-value namely 0.269> α (0.05) which means there is no significant relationship between work and adherence to taking medication by method pill-count. This is because the majority of respondents work in the non-formal sector without a specified working time limit, so that respondents who work in the formal sector still have the same opportunities and availability of time as respondents who work in the non-formal sector in carrying out health checks. The results of this study are in line with research conducted by Angelia., et al (2023) which stated that there was no significant relationship between work and adherence to taking medication by method pill-count.

Test results chi-square obtained a P-value namely 0.351> α (0.05) which means there is no significant relationship between work and adherence to taking medication using the MMAS-8 method. This is because respondents who had little activity for their medication adherence level were not all good, because respondents with little activity often forgot and lacked awareness in dutifully taking medication. The results of this study are in line with research conducted by

Angelia., et al (2023) which stated that there was no significant relationship between work and adherence to taking medication using the MMAS-8 method.

Test results chi-square obtained a P-value namely 1,000> α (0.05) which means there is no significant relationship between the length of suffering and adherence to taking medication using the method pill-count. This is because patients who have suffered from hypertension for a long time do not always disCompliant taking medication. The length of time you suffer from hypertension is related to the length of time you undergo hypertension treatment. These results are in line with research conducted by Angelia., et al (2023) which stated that there was no significant relationship between long suffering and adherence to taking medication with the method pill-count.

Test results chi-square obtained a P-value namely 0.827> α (0.05) which means there is no significant relationship between the length of suffering and adherence to taking medication using the MMAS-8 method. This is because not all respondents who have suffered from hypertension for a long time have a low level of compliance. The longer the patient suffers from hypertension, the more obedient they are to take medication, because most patients already know awareness of the treatment they are undergoing. The results of this study are in line with research conducted by Angelia., et al (2023) which stated that there was no significant relationship between length of suffering and adherence to taking medication using the MMAS-8 method.

Test results chi-square obtained a P-value namely 0.550> α (0.05) which means there is no significant relationship between support from the family and adherence to taking medication with the method pill-count. This is because not all patients who do not receive support from their families have a non-compliant level of adherence. At the time of the study there were patients who lived alone, but had awareness of drug compliance. The results of this study are in accordance with research conducted by Sari., et al (2019) which stated that there was no significant relationship between support from the family and adherence to taking medication with the method pill-count.

Test results chi-square obtained a P-value namely 0.925> α (0.05) which means there is no significant relationship between support from the family and adherence to taking medication using the MMAS-8 method. This is because not all patients who do not receive family support have a low level of compliance, because patients have awareness of being obedient to taking medication so they can recover from their illness. The results of this study are in line with research conducted by Sari., et al (2019) which stated that there was no significant relationship between support from the family and adherence to taking medication using the MMAS-8 method.

The high correlation is indicated by the number 0.476**, meaning it has a moderate relationship level correlation category. Meanwhile, the sig value results are 0.008 (ρ<0.05), which means there is a significant correlation or relationship between the patient's compliance with the use of antihypertensive drugs and methods pill-count and MMAS-8 with a positive relationship direction. This is because the two methods are related in the measurement of patient compliance and have a consistent pattern of relationships. MMAS-8 may be used if pill-count not available or difficult to do. The results of this study are in line with research conducted by Husnul et al. (2021) which shows that there is a relationship between patient compliance with the use of antihypertensive drugs and methods pill-count and MMAS-8.

## CONCLUSION

Patient compliance rate of the test chi-square has a sig value of 0.008<0.05 which means the patient's level of compliance with using oral antihypertensive drugs using the method pill-count and MMAS-8 at the Sari Medika Ambarawa Clinic, Semarang Regency is classified as compliant. The relationship between the patient's level of compliance with the use of antihypertensive drugs and methods Pill-Count and MMAS-8. On test spearman rank has a sig value result of 0.008 < 0.05, meaning that there is a relationship between the patient's level of adherence to the use of

antihypertensive drugs and methods Pill-Count and MMAS-8 which has a moderate level of relationship correlation.

## REFERENCES


Alyssa, H dan Aderson. (2024). Haruskah Anda Minum Alkohol Jika Anda Memiliki Tekanan Darah Tinggi? Verywellhealth. Diakses pada 7 Januari 2025. Https://Www.Verywellhealth.Com/Alcohol High-Blood-Pressure-8629909

Angelia, P. A., Mika, T.K.S., dan Marina, K. (2023). Evaluasi Tingkat Kepatuhan Pasien Hipertensi Terhadap Penggunaan Obat Hipertensi Di Instalasi Farmasi Rawat Jalan Rumah Sakit Umum Daerah Cilacap.

Aries, M., Alifa, S., Putri, E.S., Farida, T., Fitri, S., dan Mega, L (2024). Tingkat Kepatuhan Penggunaan Obat Antidiabetes Oral Dengan Menggunakan Metode Pill-Count Pada Pasien Prolanis Sistem Jaminan Kesehatan Indonesia (Jkn) Diabetes Mellitus Tipe 2 Di Poliklinik Rs Satria Medika Periode Maret – April 2023. Jurnal Insan Farmasi Indonesia, 7(2), 24–32, diakses 10 November 2024, https://doi.org/10.36387/jifi.v7i2.2090

Ellis, M., Suling, L., & Kallo, V. (2020). Pengaruh Aktivitas Fisik Terhadap Tekanan Darah Pada Usia Lanjut 60-74 Tahun. Jurnal Keperawatan, 8(1), 83. Https://Doi.Org/10.35790/Jkp.V8i1.28415

Fadhli, R. (2021). Stres Bisa Bikin Hipertensi, Benarkah? Halodoc. Diakses pada 7 Januari 2025. Https://Www.Halodoc.Com/Artikel/Stres-Bisa-Bikin-Hipertensi-Benarkah?Srsltid=Afmbooo_Gmgtyzb6_Rvyxdatxwk7a341ukwhx-M2vziy_2nrpx2peuul#Google_Vignette

Handayani, S., dan Mawarni, S. (2024). Capaian Pelayanan Kesehatan Hipertensi (Studi Observasi Di Puskesmas Wonogiri 1). Jurnal Keperawatan GSH, 13(2), 1–5.

Hillary, S. P. (2024). ACE Inhibitor. Hellosehat. Diakses pada 7 Januari 2025. Https://Hellosehat.Com/Obat-Suplemen/Ace-Inhibitor/

Husnul, W., Rusdiati, H., Yullia, S., Triswanto, S., dan Endah, H. (2021). Profil Kepatuhan Minum Obat Pada Pasien Hipertensi Di Puskesmas Muara Wis.

Ida, N. (2023). Hipertensi Pada Remaja Dipengaruhi Gaya Hidup. ANTARA. Diakses pada 7 Januari 2025. Https://Www.Antaranews.Com/Berita/3476271/Hipertensi-Pada-Remaja-Dipengaruhi-Gaya-Hidup

Jeff, C. (2022). Merokok Dan Hipertensi. KLINISIA. Diakses pada 7 januari 2025. Https://Www.Klinisia.Id/Artikel-Kesehatan/Merokok-Dan-Hipertensi/

Kemenkes. (2024). Pola Hidup Sehat Untuk Mencegah Hipertensi Dan Faktor Risiko Penyakit Jantung Koroner. PTM. Diakses pada 7 November 2024. Https://P2ptm.Kemkes.Go.Id/Informasi-P2ptm/Pola-Hidup-Sehat-Untuk-Mencegah-Hipertensi-Dan-Faktor-Risiko-Penyakit-Jantung-Koroner

Kemenkes. (2020). Hipertensi Yang Tidak Terkontrol Dapat Menyebabkan Terjadinya Komplikasi. Diakses pada 9 November 2024. Https://P2ptm.Kemkes.Go.Id/Infographic/Hipertensi-Yang-Tidak-Terkontrol-Dapat-Menyebabkan-Terjadinya-Komplikasi

Kemenkes. (2021). Mengenal Penyakit Hipertensi. Diakses pada 7 November 2024. Https://Upk.Kemkes.Go.Id/New/Mengenal-Penyakit-Hipertensi

Kemenkes. (2022). Sepuluh Obat Anti Hipertensi. Diakses pada 11 November 2024. Https://Yankes.Kemkes.Go.Id/View_Artikel/1994/Sepuluh-Obatantihipertensi

Leonora, D.L. (2023). Faktor Risiko Kejadian Hipertensi Pada Usia 35-50 Tahun Di Wilayah Kerja Puskesmas Siwalima Kabupaten Kepulauan Aru Tahun 2022. At-Tawassuth: Jurnal Ekonomi Islam, VIII(I), 1–19.

Liza, E. (2022). Hubungan Kepatuhan Pencegahan Komplikasi Dengan Tekanan Darah Pada Penderita Hipertensi Di Wilayah Kerja Puskesmas Jembatan Kecil Kota Bengkulu Tahun 2022. 1–41.

Lusi, A.S., Almasyhuri., dan Ahmad, H. (2022). Evaluasi Kepatuhan Pasien Pada Penggunaan Obat Antidiabetik Oral Dengan Metode Pill-Count dan MMAS-8 Di Rumah Sakit PMI Kota Bogor.

Meryta, A., Sabrina, A., Eka Sari, P., Tuahuns, F., Savitri, F., & Listyawati, M. (2024). Tingkat Kepatuhan Penggunaan Obat Antidiabetes Oral Dengan Menggunakan Metode Pill-Count Pada Pasien Prolanis Sistem Jaminan Kesehatan Indonesia (Jkn) Diabetes Mellitus Tipe 2 Di Poliklinik Rs Satria Medika Periode Maret – April 2023. Jurnal Insan Farmasi Indonesia, 7(2), 24–32. Https://Doi.Org/10.36387/Jifi.V7i2.2090

Meva, N.T. (2024). Antagonis Kalsium. Alodoter. Diakses pada 7 Januari 2025. Https://Www.Alodokter.Com/Antagonis-Kalsium

Mitra. (2022). Kenali Faktor Risiko Hipertensi Dan Pencegahannya. Mitra Keluarga. Diakses pada 8 Januari 2025. Https://Www.Mitrakeluarga.Com/Artikel/Faktor-Risiko-Hipertensi

Musirotul, A. (2024). Hubungan Pengetahuan Dengan Kepatuhan Minum Obat Pada Pasien Diabetes Melitus Tipe 2 Di RSU PKU Muhammaduyah Gubug.

Nur, M.M., Sartika., dan Farihah, M. (2023). Faktor Yang Berhubungan Dengan Kepatuhan Minum Obat Pada Penderita Diabetes Melitus Di Wilayah Puskesmas Tamalanrea Kota Makassar

Peraturan Menteri Kesehatan Republik Indonesia Nomor 9 Tahun 2014 Tentang Klinik.

Peraturan Menteri Kesehatan Republik Indonesia Nomor 34 Tahun 2021 Tentang Standar Pelayanan Kefarmasian Di Klinik.

Peraturan Pemerintah Republik Indonesia Nomor 47 Tahun 2016 Tentang Fasilitas Pelayanan Kesehatan.

Peraturan Presiden Republik Indonesia Nomor 82 Tahun 2018 Tentang Jaminan Kesehatan.

Ria, A. K. (2023). Kenapa Obesitas Bisa Menyebabkan Hipertensi? Kompas. Diakses pada 8 Januari 2025.https://Health.Kompas.Com/Read/23F05140000968/Kenapa-Obesitas-Bisa-Menyebabkan-Hipertensi

Rika, W. D. (2023). Faktor Risiko Kejadian Hipertensi Pada Usia 35-50 Tahun Di Wilayah Kerja Puskesmas Siwalima Kabupaten Kepulauan Aru Tahun 2022. At-Tawassuth: Jurnal Ekonomi Islam, VIII(I), 1–19.

Rokom. (2024). Bahaya Hipertensi, Upaya Pencegahan Dan Pengendalian Hipertensi (P. 1). Https://Sehatnegeriku.Kemkes.Go.Id/Baca/Rilis-Media/20240518/5245526/Bahaya-Hipertensi-Upaya-Pencegahan-Dan-Pengendalian-Hipertensi/

Rusmawaty, S. (2022). Artikel Kesehatan : Kepatuhan Lansia Untuk Minum Obat. Https://Dinsospmd.Babelprov.Go.Id/Content/Artikel-Kesehatan-Kepatuhan-Lansia-Untuk-Minum-Obat

Siti, I., Praba, G., Lintang, D.S, dan Ari, U. (2020). Faktor-faktor yang Berhubungan dengan Kepatuhan Pengobatan pada Penderita Hipertensi di Wilayah Kerja Puskesmas Pudakpayung Kota Semarang Tahun 2019. Jurnal Kesehatan Masyarakat, 8(3), 352–359, diakses 1 November 2024, http://ejournal3.undip.ac.id/index.php/jkm.

Sri, H., dan Siti, M. (2024). Capaian Pelayanan Kesehatan Hipertensi (Studi Observasi di Puskesmas Wonogiri 1). Jurnal Keperawatan GSH, 13(2), 1–5.

Sri, W., Haniarti., dan Henni, K, H. (2022). Hubungan Pola Diet Dan Aktivitas Fisik Pada Penderita Hipertensi Dalam Mengontrol Tekanan Darah Di Puskesmas Madising Na Mario Kota Parepare. Jurnal Ilmiah Manusia Dan Kesehatan, 5(2), 182–190, diakses 23 Oktober 2024, https://doi.org/10.31850/makes.v6i2.875.

Sylma, N. (2020). Bolehkah Olahraga Ketika Tekanan Darah Sedang Melonjak Naik? Hellosehat. Diakses pada 7 Januari 2025. Https://Hellosehat.Com/Kebugaran/Olahraga-Lainnya/Olahraga-Saat-Tekanan-Darah-Tinggi/

Verury, V. H. (2020). Kebiasaan Minum Alkohol Bisa Memicu Hipertensi. Halodoc. Diakses pada 7 Januari 2025. Https://Www.Halodoc.Com/Artikel/Kebiasaan-Minum-Alkohol-Bisa-Memicu Hipertensi?Srsltid=Afmbooq9qkphgaspbojoqfbztlh2whwkmotff2xpwokz6hfw3iejwjax

WHO. (2023). Hypertension. Https://www.Who.Int/News-Room/Fact-Sheets/Detail/Hypertension.