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The Relationship between the Level of Compliance of Taking Hypertension Medication and the Blood Pressure of Prolanis Patients in the Working Area of the Tilango Health Center

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ABSTRACT

Hypertension is one of the chronic diseases that requires long-term management because it can cause complications if not controlled. One of the important factors in blood pressure control is the patient's adherence to taking antihypertensive drugs regularly. Patients who are members of the Chronic Disease Management Program (Prolanis) are expected to have better blood pressure control through routine health monitoring and continuous education. This study aims to determine the relationship between the level of compliance with hypertension medication and the blood pressure of Prolanis patients in the Working Area of the Tilango Health Center, Gorontalo Regency. This study is a quantitative research using a correlational analytical design with a cross sectional approach, involving 53 respondents who were taken using purposive sampling techniques. The results showed that the majority of respondents had medication adherence in the moderate category as many as 29 people (54.7%), while the majority of respondents' blood pressure was in the mild category as many as 27 people (50.9%). Based on the results of the Chi-Square test, a p value of < 0.05 was obtained, so it can be concluded that there is a significant relationship between the level of compliance with taking hypertension medication and the blood pressure of Prolanis patients in the Tilango Health Center Working Area, Gorontalo Regency, where the better the patient's level of adherence in taking medication, the more controlled the patient's blood pressure.

INTRODUCTION

Hypertension is one of the diseases that are experienced by many Indonesian people, This is caused by changes in the lifestyle of people with hypertension so that it can cause various serious complications. Generally, hypertension is accompanied by symptoms such as headaches and dizziness, but most sufferers do not feel any symptoms even though their blood pressure is well above normal limits. This disease is often referred to as a *silent killer* because of its deadly nature but does not show obvious symptoms, and is also a typical characteristic of cardiovascular disease (Pakaya *et al*., 2024)

According to World *Health Organization* (WHO) data of 1.28 billion adults aged 30–79 years worldwide suffer from hypertension, an estimated 46% of adults with hypertension are unaware that they have the disease. Less than half of adults as many as 42% of people with hypertension are diagnosed and treated. About 1 in 5 adults as much as 21 percent with hypertension can control it. Hypertension is the leading cause of premature death worldwide (WHO, 2023).

According to the Indonesian Health Survey (SKI), the data on hypertension patients is in Jakarta as much as 13.5%, the Special Region of Yogyakarta as much as 13.3%, Gorontalo Province as much as 8.2%. The percentage based on the most age is in the range of 45 years to 75 years. Females with a percentage of 10.5% and males with a percentage of 5.5% (Ministry of Health, 2023).

Based on data obtained from the Gorontalo Provincial Health Office, in 2025, the prevalence of hypertension will be 29,300 people. Patients with hypertension with a distribution of cases include Pohuwato

Regency as many as 2,124 people, Boalemo as many as 1,960 people, North Gorontalo as many as 4,153 people, Gorontalo Regency 10,897 people, Bone Bolango as many as 4,572, Gorontalo City as many as 5,594 people and who rank first in Gorontalo Regency with the highest hypertension prevalence recorded from January 2025 to August 2025 (Gorontalo Provincial Health Office 2025).

Data from the Gorontalo Regency Health Office noted that the number of hypertension patients in various health centers who were diagnosed was 86,623 people and who received services as many as 50,221 people from 23 health centers in Gorontalo Regency there are the top 3 areas with the most hypertension diagnosed, namely at the Limboto Health Center which is as many as 10,670 people and who receive services as many as 1,885 people, Tilango Health Center has 6,223 people and 4,626 people have visited, Pulubala Health Center has 6,194 people and 3,851 people have received services, based on data from the three health centers showing that hypertension is one of the main health problems that require serious attention (Gorontalo Regency Health Office, 2025).

Various factors can affect the increase in hypertension cases, including an unbalanced diet, excessive salt consumption, smoking habits, alcohol consumption, stress, and lack of physical activity. The government has made efforts to overcome this problem by improving health service programs, one of which is through routine blood pressure checks and educational activities at health centers (Pakaya *et al*., 2024).

However, various studies show that among these lifestyle factors, adherence to taking anti-hypertensive drugs has the greatest influence on the control of patients' blood pressure**.** According to research by Wibowo *et al*. (2023)**,** patients who had high adherence to treatment showed three times greater chances of achieving normal blood pressure compared to patients who relied solely on a low-salt diet and exercise. Research by Lestari & Yunita (2022) also shows that lifestyle changes such as regular physical activity and salt intake regulation only contribute about 20–30% to blood pressure reduction**,** while adherence to drug therapy contributes more than 80% to the success of hypertension control**.** In addition, the research of Rahmadani *et al*. (2024) confirms that consistent adherence to medication is a major factor that determines blood pressure stability compared to other factors such as diet or stress management. Therefore, adherence to pharmacological therapy is the most crucial component in the management of hypertension, especially for Prolanis patients undergoing long-term treatment in primary health facilities.

Although pharmacological therapy is long-term and even lifelong, the level of patient adherence to taking anti-hypertensive drugs is still relatively low. Based on data from the Ministry of Health in 2018, only 54.4% of hypertension patients routinely take medication, 32.2% do not routinely, and 13.3% do not take medication at all. This low compliance has implications for the difficulty of controlling blood pressure and increasing the risk of complications, so it is an important concern not only at the national level but also in first-level health care facilities (Febriana, 2023).

Adherence in taking medication is defined as the extent to which the patient follows medical instructions, including medication schedules and dosages. This adherence is an important factor in blood pressure management and the prevention of complications in vital organs. Non-adherence to drug therapy can decrease the effectiveness of treatment, worsen the patient's health condition, and have an impact on a decrease in quality of life (Fifi *et al*., 2021).

This non-compliance is one of the factors that can cause hypertension conditions to get out of control, thereby increasing the risk of various serious complications in the target organs such as the heart, kidneys, brain, eyes, and peripheral blood vessels. The severity of such organ damage depends largely on how high blood pressure and duration hypertension is not effectively treated. Although often without complaints, blood pressure that continues to increase over a long period of time can result in fatal health impacts (Silvianah, 2024).

The low level of patient adherence to treatment is a major challenge in the successful management of hypertension, although programs such as Prolanis have been implemented. This program is actually designed to help patients maintain regular treatment and monitor their health conditions continuously through educational activities and medical assistance. However, if the patient does not actively participate or is not disciplined in following the recommendations of health workers, then the goals of the program will not be achieved optimally. Therefore, increasing patient awareness and motivation to comply with therapy and actively participate in Prolanis activities is an important step in preventing serious complications due to hypertension (Rufiati & Mendrofa, 2022).

Based on the results of research by Karina *et al*. (2022), of all hypertension patients studied, only 34% were compliant in taking medication, while 66% were non-compliant. This is in line with the research of Wijayanti *et al*. (2022), which noted that of 83 respondents, as many as 55.6% did not comply with therapy, and only 44.6% complied, but the results of the study did not explain what factors made respondents non-compliant in taking drugs, so the researcher wanted to conduct and identify further by conducting this study because based on initial observations made by researchers at the Tilango Health Center, there were 116 patients with hypertension prolanis. Of the 116 prolanis patients examined from January to August 2025, the blood pressure data of prolanis hypertensive patients was recorded as having systolic blood pressure of 200/100 mmHg and 8 people had blood pressure of 150/90 and the rest had blood pressure of 120/80 (normal) with

measurements using digital tension. This figure shows that even though all patients are registered in the chronic disease management program, there is still a significant proportion who experience severe hypertension (Tilango Health Center, 2025).

A number of previous studies in 2024 such as those conducted by Simatupang (2024), Kusuma & Dewi (2024) and Lailasari (2024) show a relationship between adherence to taking anti-hypertensive drugs and blood pressure in Prolanis patients in various regions. However, most of these studies have limitations in terms of respondent characteristics and the scope of the study. Previous studies have tended to focus on specific age groups, such as the elderly or the productive age, and used a limited number of samples or medical record data.

In contrast to previous studies, this study was conducted with a wider scope because it involved patients with various age ranges, genders, and social and economic backgrounds. In addition, this study uses primary data obtained directly from interviews and the results of blood pressure measurements in Prolanis activities. This approach provides *novelty* because it is able to describe patient compliance conditions more comprehensively based on real situations in the field. This research was also carried out in the working area of the Tilango Health Center which has diverse community characteristics and has not been used as a similar research location, so the results are expected to make a scientific and practical contribution to improving compliance with hypertension treatment at the basic health service level.

Based on the background of the problem that has been stated above and related to the research plan that will be carried out by the researcher, the researcher is interested in finding out the relationship between the level of compliance of taking hypertension medication and the blood pressure of prolanis patients in the working area of the Tilango Health Center.

METHODS

This study is a correrelative descriptive research using a cross sectional approach. The design of this study aims to determine the relationship between independent variables and dependent variables where the measurements are observed at the same time (Adiputra et al., 2021). The research location was carried out in the Tilango Health Center Working Area. This research will be carried out on December 1, 2025. The number of samples in this study is 53 samples. In analyzing the research data, the Statistical *Program for the Social Science* (SPSS) version 20 will be used.

RESULTS

Respondent Characteristics

Table 1. Distribution of Respondent Characteristics Based on the Age of Prolanis Participants in the Working Area of the Tilango Health Center, Gorontalo Regency

No.	Age	Frequency(s)	Percentage(%)
1.	Late Adulthood (36-45)	2	3.8
2.	Early Elderly (46-55)	7	13.2
3	Late Elderly (56-65)	27	50.9
4.	Senior ≥65 years old	17	32.1
Total		53	100

Source : Primary data 2025

Based on Table 1, the distribution of respondent characteristics based on the age of the elderly in the working area of the Tilango Health Center, Gorontalo Regency, most of the respondents were in the final elderly category, which was 27 respondents (50.9%), while the least number of respondents was in the final adult category, which was 2 respondents (3.8%).

Table 2. Characteristics of Respondents Based on the Gender of Prolanis Participants in the Working Area of the Tilango Health Center, Gorontalo Regency

Yes	Gender	Frequency (N)	Percentage (%)
1	Male	24	45.3
2	Women	29	54.7
	Total	53	100

Source : Primary data 2025

Based on Table 2, showing the distribution of respondent characteristics based on gender in the work area of the Tilango Health Center, Gorontalo Regency, most of the respondents were female, namely 29 respondents (54.7%), while the male respondents were 24 respondents (45.3%).

Characteristics of respondents based on the length of time they suffered from hypotension in the working area of the Tilango Health Center, Gorontalo Regency

Table 3. Based on the characteristics of old respondents suffering from hypertension, prolanis participants in the work area of the Tilango Health Center, Gorontalo Regency

No.	Long Suffering from Hypertension	Frequency(s)	Percentage(%)
1.	≤ 1 Year	11	20.8
2.	1-5 Years	14	26.4
3	≥ 5 Years	28	52.8
Total		**53**	**100**

Source : Primary data 2025

Based on Table 3, the distribution is based on the length of time suffering from hypertension in the working area of the Tilango Health Center, Gorontalo Regency. The results showed that most of the respondents had suffered from hypertension for ≥ 5 years, namely 28 respondents (52.8%). The high proportion of respondents who have suffered from hypertension for ≥ 5 years indicates that hypertension is a chronic disease that develops slowly and requires long-term management. This condition occurs because hypertension often does not cause symptoms in the early stages so many sufferers are only diagnosed after a few years (Unger *et al*., 2020). Respondents with hypertension for a period of 1–5 years were in the adaptation phase to disease and treatment, while respondents with hypertension for a long time ≤ 1 year were less likely to suffer due to delayed detection due to low awareness of routine blood pressure checks (Carey & Whelton, 2021)

Distribution of respondent characteristics based on the length of time they have been a Prolanis participant in the working area of the Tilango Health Center, Gorontalo Regency

Table 4. Distribution of Old Respondents to Become Prolanis Participants in the Working Area of the Tilango Health Center, Gorontalo Regency

No.	Long Time Prolanis Participant	Frequency(s)	Percentage(%)
1.	≤ 1 Year	21	39.6
2.	1-5 Years	7	13.2
3	≥ 5 Years	25	47.2
Total		**53**	**100**

Source : Primary data 2025

Based on Table 4, it shows that out of 53 respondents, more elderly people became prolanis participants for the longest ≥ 5 years, which was 25 respondents or 47.2%. Respondents who followed Prolanis for ≥ 5 years showed that Prolanis is a continuous health service program for patients with chronic diseases, including hypertension, which requires long-term monitoring and treatment (BPJS Kesehatan, 2021). Respondents with a participation period of ≤ 1 year are related to the existence of new hypertension cases and the screening of participants who are still active is carried out by the Tilango Health Center, while respondents with a participation period of 1-5 years are in the stage of adjustment to the program and routine treatment. The length of participation in Prolanis reflects the program's role in supporting the sustainable management of hypertension (Putri *et al*., 2022)

Univariate Analysis

Compliance with Taking Hypertension Drugs That Are Members of the Prolanis Program in the Working Area of the Tilango Health Center, Gorontalo Regency.

Table 5. Distribution of Respondents Based on Compliance with Hypertension Medication

No.	Compliance	Frequency(s)	Percentage(%)
1.	Height	12	22.6
2.	Medium	28	52.8
3	Low	13	24.5
Total		**53**	**100**

Source: Primary Data, 2025

Based on Table 5, it shows that out of 53 respondents, most of the respondents who are members of the Chronic Disease Management Program (Prolanis) in the working area of the Tilango Health Center, Gorontalo Regency have a moderate level of compliance with taking anti-hypertensive drugs in the medium category, namely 28 respondents (52.8%).

Blood Pressure That Is A Member Of The Prolanis Program In The Working Area Of The Tilango Health Center, Gorontalo Regency.

Table 6. Distribution of Respondents Based on Blood Pressure Taking Hypertension Medication

No.	Blood pressure	Frequency(s)	Percentage(%)
1.	Normal	21	45,3
2.	Lightweight	24	24,5
3	Medium	8	28.3
4	Weight	0	1
Total		**53**	**100**

Based on Table 6, most of the respondents were in the normal blood pressure category, which was 24 people (45.3%), followed by the medium category as many as 15 people (28.3%) and light category as many as 13 people (24.5%), while the heavy category was only found in 1 person (1.9%). This shows that almost half of Prolanis patients in the Tilango Health Center work area have achieved controlled blood pressure, but there are still some patients with suboptimal blood pressure.

Bivariate Analysis

The Relationship between Hypertension Medication Compliance and Blood Pressure of Prolanis Patients in the Working Area of the Tilango Health Center, Gorontalo Regency

Table 7. The Relationship between Hypertension Medication Compliance with High Blood Pressure in the Elderly in the Working Area of the Tilango Health Center, Gorontalo Regency

Hypertension Medication Compliance	Blood Pressure				*P value*
	Normal	Lightweight	moderate	Weight	
Height	11	1	0	0	0.000
Medium	8	17	3	1	
Low	1	9	3	0	
Total	20	27	6	1	

Source: Primary Data, 2025

Based on Table 7, respondents with high levels of compliance were mostly in the normal blood pressure category, which was 11 people (91.7%), while respondents with low compliance were mostly in the moderate blood pressure category, which was 8 people (61.5%). This shows a tendency that the higher the level of adherence to taking medication, the better the blood pressure control in Prolanis patients with hypertension.

DISCUSSION

Compliance with Taking Hypertension Medication in the Working Area of the Tilango Health Center, Gorontalo Regency

The results showed that the level of adherence to taking antihypertensive drugs in participants of the Chronic Disease Management Program (Prolanis) in the working area of the Tilango Health Center, Gorontalo Regency was mostly in the medium category, namely 28 respondents (52.8%), followed by the low category of 13 respondents (24.5%), and the high category of 12 respondents (22.6%). This distribution illustrates that even though respondents have joined the Prolanis Program, the general level of adherence to taking antihypertensive drugs is still not optimal.

The findings show that medication adherence in hypertensive patients is a complex health behavior and is influenced not only by the existence of health care programs, but also by various individual and environmental factors. Medication adherence is a form of behavior that requires consistency, awareness, and long-term commitment from patients. This is in line with the opinion of Whelton *et al*. (2024) which states that therapeutic adherence to chronic diseases, including hypertension, is still a major challenge because treatment must be carried out continuously and often does not have an impact that is directly felt by the patient.

In general, medication adherence is influenced by individual characteristic factors, such as age, education level, length of illness, personal experience with the disease, and the patient's level of knowledge and

understanding of treatment goals. In addition, external factors such as family support, the role of health workers, and the sustainability of health service programs also play an important role in shaping obedient behavior. This condition explains why the level of compliance in Prolanis participants still varies even though they gain relatively uniform access to health services.

In the group of respondents with a high level of adherence to taking medications, as many as 12 respondents (22.6%) showed good adherence to antihypertensive medication. Based on the characteristics of the respondents in the master table, this group was dominated by respondents who were elderly and had suffered from hypertension for a relatively long period of time and had participated in the Prolanis Program consistently. Long experience in undergoing treatment allows respondents to have a better understanding of the importance of regular and continuous drug consumption.

Patients with a longer history of the disease have generally received repeated health education, either through Prolanis activities or through direct interaction with health workers. The repetition of this information plays a role in strengthening understanding and forming the belief that medication adherence is a necessity that must be lived. Theoretically, this condition is in line with Kelman's theory of behavior change, especially at the *internalization stage*, which is when individuals comply with a behavior because they believe that the behavior is in accordance with their personal values and beliefs. In this context, taking medication is no longer done out of coercion or supervision, but out of awareness and internal motivation.

Research by Rahmawati *et al*. (2024) supports these findings by stating that hypertension patients who have undergone treatment for a long period of time and receive continuous health education tend to have higher levels of adherence to taking medication. Repeated education helps patients understand long-term treatment goals and reduces doubts or misperceptions regarding medication consumption.

Most of the respondents in this study were in the medium compliance category, namely 28 respondents (52.8%). This group still takes antihypertensive drugs, but has not done so consistently in daily life. Based on the master table, respondents in this category generally have suffered from hypertension for 1–5 years and have been on the Prolanis Program, but have not fully made taking medication an inherent habit in their daily routine.

Moderate category compliance is characterized by behaviors such as forgetting to take medication, not taking medication at a predetermined time, or deliberately skipping a certain dose. This condition shows that respondents actually have basic knowledge and awareness about the importance of treatment, but do not have a strong commitment to maintain compliance consistently. According to Burnier and Egan (2024), moderate adherence is the most common condition found in chronic disease patients, particularly in primary health services, as patients are still in the adaptation phase to long-term treatment.

In Kelman's theory of behavior change, categorical compliance is reflecting the *identification stage*, which is when individuals comply with a behavior due to external influences, such as the recommendation of health workers, supervision of service programs, or encouragement from the family. However, these behaviors have not been fully internalized so they are still prone to decline, especially when supervision decreases or external motivation weakens. Research by Simatupang *et al*. (2024) shows that the factors of forgetfulness and saturation of long-term treatment are the main causes of moderate adherence in hypertensive patients.

In the group of respondents with low medication adherence, as many as 13 respondents (24.5%) showed non-adherent behavior to treatment. Based on the characteristics of the respondents in the master table, this group was dominated by patients who had recently suffered from hypertension and had been following the Prolanis Program for a relatively short time. Patients in the early stages of the disease generally do not have enough experience regarding the importance of long-term treatment, so motivation to comply is still low.

The low adherence to this group can be explained through the *Health Belief Model*, which states that an individual's health behavior is influenced by perceptions of disease susceptibility and seriousness, as well as perceived benefits and barriers. Individuals who have not felt that their illness has had a significant impact tend to have a low perception of treatment needs, resulting in less adherence to medication. This is in line with a report by the Ministry of Health of the Republic of Indonesia (2024) which states that the low compliance of hypertension patients is often caused by the assumption that treatment does not need to be carried out routinely when there are no complaints.

Research by Putri *et al*. (2024) also shows that patients with low levels of medication adherence generally have limited levels of knowledge, lack of understanding of long-term therapeutic goals, and lack of support from the surrounding environment. This condition reinforces the finding that medication adherence is not only influenced by access to health services, but also by patients' behavioral and psychosocial factors.

Based on the overall discussion, it can be concluded that the level of compliance with taking antihypertensive drugs in Prolanis participants in the work area of the Tilango Health Center, Gorontalo Regency is still dominated by moderate category compliance. This condition shows that the Prolanis Program has contributed to increasing patient awareness to take medications, but has not fully succeeded in establishing optimal and sustainable compliance. Therefore, efforts are needed to strengthen health education that is carried out on an ongoing basis, increase assistance for Prolanis participants who have just joined, and the active involvement of health workers and families in supporting medication obedient behavior.

Blood Pressure of Prolanis Patients in the Working Area of the Tilango Health Center, Gorontalo Regency

The results of the study showed that the blood pressure of Prolanis patients in the working area of the Tilango Health Center, Gorontalo Regency was in several categories. A total of 24 respondents (45.3%) have achieved normal blood pressure, while 29 other respondents (54.7%) are still in the light, medium, and severe blood pressure categories. This condition shows that hypertension control in Prolanis participants has begun to be achieved, but it is not completely evenly distributed to all respondents.

The group with normal blood pressure totaling 24 respondents (45.3%) showed relatively stable hypertension management conditions. Continuous involvement in Prolanis activities, accompanied by regular health check-ups, plays a role in shaping better disease management behaviors. Repeated exposure to health education and blood pressure monitoring supported respondents' ability to maintain blood pressure within a controlled range, even though most were in late adulthood. This condition is in line with the concept of chronic disease management which emphasizes the continuity of care and adaptation of patients to long-term management. *The American Heart Association* (AHA, 2024) states that elderly hypertensive patients who undergo regular blood pressure monitoring and ongoing therapy management have a greater chance of achieving controlled blood pressure. These findings are also reinforced by the research of Nurdin *et al*. (2024) which reports that long-term involvement in chronic disease management programs is associated with better blood pressure control outcomes.

On the other hand, mild blood pressure conditions were experienced by 13 respondents (24.5%). At this level, the blood pressure is slightly above the normal limit and is not yet completely stable. Fluctuations in blood pressure in this group showed that the hypertension management process was still in the adjustment stage. Consistency of health monitoring and the implementation of non-optimal disease management are factors that affect these conditions. Whelton *et al*. (2024) explained that mild blood pressure is often found in patients who are not completely consistent in undergoing therapy and monitoring, especially in the early stages of hypertension management. Research by Lailasari (2024) also shows that hypertensive patients with mild blood pressure still have a great chance of achieving better conditions if they receive continuous assistance and monitoring.

Meanwhile, moderate blood pressure was found in 15 respondents (28.3%). This number shows that there is still a considerable proportion of Prolanis participants who experience blood pressure that has not been optimally controlled. Blood pressure in this category reflects that the adaptation process to long-term hypertension management has not gone well. In the late elderly age group, this condition can be affected by regularity in undergoing treatment and the habit of conducting health monitoring. Burnier and Egan (2024) stated that the success of blood pressure control in elderly hypertensive patients is greatly influenced by the patient's experience and consistency in undergoing therapy and routine monitoring. The results of the research of Wibowo *et al*. (2023) also shows that the involvement of health programs that are not optimal is related to blood pressure that has not been fully controlled.

Severe blood pressure was only experienced by 1 respondent (1.9%). Although the proportion is small, this condition indicates that there are Prolanis patients who still experience very high blood pressure and require special attention. Blood pressure at this level reflects that hypertension management is not running optimally and requires a more intensive approach. *The American Heart Association* (AHA, 2024) emphasizes that hypertensive patients with very high blood pressure require close monitoring and continuous therapy adjustments to prevent complications. Research by Lailasari (2024) also shows that patients with severe blood pressure have a risk of blood pressure instability if disease management is not carried out consistently.

Overall, the variation in blood pressure levels in Prolanis participants in the work area of the Tilango Health Center, Gorontalo Regency shows that hypertension control is a gradual process that requires continuous involvement. Although some respondents have achieved normal blood pressure, there are still respondents with mild, moderate, to severe blood pressure. This confirms that the Prolanis Program has made a positive contribution to the management of hypertension, but the achievement of optimal outcomes is highly dependent on the consistency of disease management and the active involvement of participants in the long term.

The Relationship of Compliance with Anti-Hypertension Medication and Blood Pressure of Prolanis Patients

The results of the study showed that there was a significant relationship between the results of the study showed that there was a significant relationship between the level of adherence to taking antihypertensive drugs and the blood pressure of Prolanis patients in the working area of the Tilango Health Center, Gorontalo Regency. This is proven by the results of *the Chi-Square* test which shows a *p value* of 0.000 ($p < 0.05$). These findings suggest that the level of medication adherence has a significant association with the patient's blood pressure condition, so the research hypothesis that there is a relationship between

adherence to antihypertensive medication and patient blood pressure is acceptable (*World Health Organization*, 2023).

Descriptively, blood pressure distribution patterns showed that respondents with higher levels of medication adherence tended to have more controlled blood pressure compared to respondents with low adherence. This pattern illustrates that medication adherence is an important factor in successful hypertension control, particularly in patients with chronic diseases that require long-term therapy (Unger *et al*., 2023). WHO (2023) emphasizes that adherence to antihypertensive medication is a key determinant in achieving blood pressure targets and preventing cardiovascular complications.

Physiologically, antihypertensive drugs work through several mechanisms, including lowering peripheral blood vessel resistance, reducing intravascular fluid volume, and inhibiting the activity of the renin–angiotensin–aldosterone system. This mechanism will have an optimal effect if the drug is consumed regularly, continuously, and according to the recommended dosage (Unger *et al*., 2023). Non-adherence to medication causes drug levels in the body to become unstable, making it difficult for blood pressure to be controlled optimally (Burnier *et al*., 2022).

The results of this study are in line with the research of Lailasari (2024) which found a significant relationship between the level of adherence to taking antihypertensive drugs and controlled blood pressure in hypertensive patients. Another study by Wibowo *et al*. (2023) also reported that hypertensive patients who did not comply with medication had several times greater risk of developing uncontrolled blood pressure than patients who adhered to treatment. These findings reinforce the results of this study that medication adherence is a key factor in hypertension control.

Based on the master table, in the group of patients with adherence to taking high hypertension medication, there were 11 respondents (91.7%) with normal blood pressure and 1 respondent (8.3%) with mild blood pressure. This condition suggests that high adherence to medication is closely related to achieving controlled blood pressure. This is in line with the latest hypertension guidelines which state that high adherence to pharmacological therapy directly contributes to the success of blood pressure control (*World Health Organization*, 2023; Unger *et al*., 2023).

The discovery of mild blood pressure in the high compliance group can be explained by factors that have been suffering from hypertension for a long time. Patients who have had hypertension for a period of 1–5 years or more than 5 years tend to experience structural changes in the blood vessels, such as decreased arterial elasticity, so that the response to antihypertensive drugs becomes slower and a gradual decrease in blood pressure occurs (Unger *et al*., 2023). This condition suggests that despite high adherence, blood pressure does not always immediately reach the normal category.

In the group of patients with adherence to moderate hypertension medication, the distribution of blood pressure showed a wider variation, namely 8 respondents with normal blood pressure, 17 respondents with mild blood pressure, 3 respondents with moderate blood pressure, and 1 respondent with heavy blood pressure. This variation suggests that suboptimal adherence causes blood pressure control to become unstable. Irregular consumption of drugs can still have certain therapeutic effects, so that some patients are still in the normal and mild blood pressure category (World Health Organization, 2023).

However, moderate and severe blood pressure in the moderate adherence group showed the impact of medication irregularities on therapy failure. Burnier *et al*. (2022) states that partial adherence causes fluctuations in drug levels in the body, which contributes to blood pressure that remains high or uncontrollable. In addition, patients with moderate adherence often stop or reduce medication intake when they feel the condition is improving, which can cause blood pressure to rise again (Unger *et al*., 2023).

In the group of patients with adherence to low hypertension medication, based on the master table, there were 1 respondent with normal blood pressure, 9 respondents with mild blood pressure, and 3 respondents with moderate blood pressure. The dominance of mild and moderate blood pressure in this group suggests that low adherence to medication is related to suboptimal blood pressure control. WHO (2023) states that non-adherence to medication is the main cause of uncontrolled hypertension and an increased risk of cardiovascular complications.

The discovery of normal blood pressure in a small percentage of patients with low adherence can be explained by nonpharmacological factors, in particular active involvement in the Prolanis program. Activities such as Prolanis gymnastics, routine blood pressure monitoring, and health education can help lower blood pressure even though medication adherence is low. Research by Chen *et al*. (2022) shows that light to moderate aerobic physical activity performed regularly can significantly reduce systolic and diastolic blood pressure in hypertensive patients. In addition, active participation in chronic disease management programs increases patients' awareness of healthy living behaviors (*World Health Organization*, 2023).

Overall, the discussion based on the master table shows that adherence to taking antihypertensive drugs has a significant relationship with the blood pressure of Prolanis patients. The higher the level of adherence to taking medication, the greater the proportion of patients with normal blood pressure. However, variations in blood pressure at each level of compliance show that hypertension control is a long-term process

influenced by medication adherence, the length of time they suffer from hypertension, and the patient's involvement in the Prolanis program and healthy living behaviors (*World Health Organization*, 2023).

CONCLUSION

The distribution of respondents based on the level of adherence to antihypertensive drugs showed that most respondents were included in the moderate compliance category, namely 28 respondents (52.8%)**,** followed by respondents with a high compliance level of 12 respondents (22.6%), and respondents with low compliance levels as many as 13 respondents (24.5%)**.**

The distribution of respondents based on the blood pressure of Prolanis patients in the working area of the Tilango Health Center, Gorontalo Regency showed that most of the respondents had blood pressure in the mild category, namely 24 respondents, followed by the normal category of 21 respondents**,** and the medium category as many as 8 respondents**.**

The results of the analysis of the relationship between the level of adherence to antihypertensive drugs and the blood pressure of Prolanis patients in the working area of the Tilango Health Center, Gorontalo Regency, which was analyzed using the Chi-Square test , showed a *p value* = 0.001 ($p < 0.05$), so it can be concluded that H_0 is rejected and H_a is accepted, which means that there is a significant relationship between the level of adherence to taking antihypertensive drugs and the blood pressure of Prolanis patients in the working area of the Tilango Health Center, Gorontalo Regency.

SUGGESTIONS

For Gorontalo State University, this research is expected to contribute to science and as a source of nursing science development to be used as a reference for other students.

For the Tilango Health Center, this research is expected to be an input for the evaluation and information of the Tilango Health Center on the programs that have been implemented and those that have been planned by the Tilango Health Center related to the problem of hypertension incidence, especially in the prolanis program.

For the next researcher, this research is expected to be an input and reference material to add insight, knowledge and comparison for future research.

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