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The Impact of Drug Information Services on the Compliance of Hypertensive Patients at Tanjung Enim Community Health Center, Muara Enim Regency

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ABSTRACT

The Drug Information Service (PIO) is a service provided by pharmacists to deliver accurate, unbiased, and up-to-date information to healthcare professionals such as doctors, pharmacists, nurses, and patients. This study aims to assess the impact of PIO on the adherence level of hypertensive patients at the Tanjung Enim Public Health Center, Muara Enim Regency. The research utilized a quasi-experimental method with a Nonrandomized Control Group Posttest Design. Data were collected using the MMAS-8 questionnaire, with sampling conducted prospectively based on predetermined inclusion and exclusion criteria during April–May 2023. The data were then analyzed using the chi-square test. A total of 40 patients participated in the study. The findings indicated that 65% of hypertensive patients were male, while 35% were female. The age distribution showed that 42.5% were between 40–49 years old, and 12.5% were over 70 years old. Among patients who received PIO, 45% demonstrated high adherence, while 55% exhibited moderate to low adherence. In contrast, among those who did not receive PIO, only 10% had high adherence, whereas 90% showed moderate to low adherence. The chi-square test results yielded a p-value of 0.034 (<0.05), indicating that drug information services have a significant effect on the adherence level of hypertensive patients at the Tanjung Enim Public Health Center, Muara Enim Regency.

INTRODUCTION

Hypertension is a condition characterized by an increase in systolic blood pressure above 140 mmHg and diastolic blood pressure exceeding 90 mmHg, often without noticeable symptoms. Several risk factors contribute to hypertension, including genetic predisposition, obesity, stress, physical inactivity, excessive salt intake, and smoking habits. Treatment for hypertension consists of both pharmacological and non-pharmacological approaches. Pharmacological treatment involves the use of antihypertensive medications such as thiazide diuretics, while non-pharmacological methods include weight management, a low-sodium diet, and regular physical activity. Drug Information Services (PIO) provided by pharmacists play a crucial role in delivering accurate medication-related information to healthcare professionals and patients, ensuring the rational use of drugs. Adherence to therapy is essential for achieving optimal treatment outcomes, as non-compliance can result in therapy failure.

Drug Information Services (PIO) serve as a strategy to enhance patient adherence by providing education about medications and related health conditions. The prevalence of hypertension in Indonesia has risen from 25.8% in 2013 to 34.1% in 2018. In South Sumatra, the number of hypertension cases has consistently increased over the past three years, reaching 987,295 cases in 2021. In Muara Enim Regency, the prevalence of hypertension stands at 29.46%. The Tanjung Enim Health Center ranks third among health centers in South Sumatra with the highest number of hypertension cases. However, no studies have been conducted to examine the effect of PIO on patient adherence in this area. Therefore, this research aims to assess the impact of PIO on the compliance of hypertensive patients at the Tanjung Enim Health Center.

LITERATURE REVIEW

Definition of Hypertension

Hypertension, commonly known as high blood pressure, is a condition characterized by an increase in systolic blood pressure above 140 mmHg and diastolic pressure exceeding 90 mmHg. It is

often referred to as "The Silent Killer" because it can progress without noticeable symptoms while posing a significant risk of severe complications such as heart disease and stroke.

Epidemiology and Risk Factors

Hypertension is a major contributor to mortality caused by non-communicable diseases (NCDs) worldwide. Epidemiology and Risk Factors According to the World Health Organization (WHO), non-communicable diseases (NCDs) account for approximately 73% of global deaths, with hypertension being a significant contributor. Several factors can increase the risk of developing hypertension, including age, gender, genetic predisposition, obesity, high salt intake, lack of physical activity, stress, as well as smoking and alcohol consumption.

Pathophysiology of Hypertension

Hypertension develops due to an increase in angiotensin II production, which leads to blood vessel constriction and an increase in blood volume. This process is regulated by the renin-angiotensin-aldosterone system, which plays a crucial role in maintaining fluid balance and blood pressure levels in the body.

Classification and Diagnosis

According to the JNC 7 guidelines, hypertension is classified into:

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According to the JNC 7 guidelines, hypertension is classified into the following categories:

- a. Normal: Systolic \leq 120 mmHg, Diastolic \leq 80 mmHg
- b. Prehypertension: Systolic 120-139 mmHg or Diastolic 80-89 mmHg
- c. Grade 1 Hypertension: Systolic 140-159 mmHg or Diastolic 90-99 mmHg
- d. Grade 2 Hypertension: Systolic \geq 160 mmHg or Diastolic \geq 100 mmHg

The diagnosis of hypertension is made based on a patient's medical history (anamnesis), physical examination, and routine blood pressure monitoring.

Hypertension Management

a. Non-Pharmacological Treatment

1. Adopting a balanced diet with reduced salt intake
2. Stopping smoking and limiting alcohol consumption
3. Engaging in regular physical activity (3-4 times per week)
4. Practicing effective stress management

b. Pharmacological Therapy

1. ACE Inhibitors (*Captopril, Lisinopril*): Work by inhibiting the production of angiotensin II, which helps relax blood vessels and lower blood pressure.
2. Angiotensin II Receptor Blockers (ARBs) (*Losartan, Valsartan*): Prevent the effects of

angiotensin II on blood vessels, reducing vasoconstriction and lowering blood pressure.

3. Diuretics (*Furosemide, Spironolactone*): Promote the excretion of sodium and water, reducing blood volume and lowering blood pressure.
4. Calcium Channel Blockers (*Amlodipine, Verapamil*): Prevent calcium from entering the muscle cells of blood vessels, leading to relaxation and improved blood flow.
5. Beta Blockers (*Atenolol, Bisoprolol*): Reduce heart rate and decrease the workload on the heart, effectively lowering blood pressure.

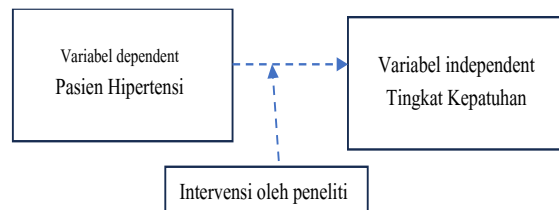


Figure 1. Research Concept Framework

METHODOLOGY

This research employed a quasi-experimental design with a Nonrandomized Control Group Posttest Design. The study population consisted of 55 patients, and 40 hypertensive patients who met the inclusion criteria were selected as samples at the Tanjung Enim Health Center between April and May 2023. The participants were divided into two groups: 20 patients received Drug Information Services (PIO) and 20 patients did not

receive PIO. Patient compliance was assessed using the MMAS-8 questionnaire after four weeks of therapy. The PIO intervention was conducted through educational leaflets from the Ministry of Health and medication reminder stickers.

RESULTS

Patient demographic data is categorized by gender, age, education level, and occupation, as shown in the following table.

Table 1. Patient Demographic Data

Variable	Data demographics	Amount	Persentase (%)
Gender	Male	26	65
	Female	14	35
	Total	40	100
Age	40-49	17	42,5
	50-59	12	30
	60-69	6	15
	>70	5	12,5

education level	Elementary	9	22,5
	Junior	10	25
	Senior	21	52,5
	Total	40	100
work	Self-employed Farmers	14	35
	Housewife	12	30
	Tidak bekerja	7	17,5
		6	15
		1	2,5

Table 2. Hypertension Patient Therapy Data

Disease Data	length of therapy	amount	Percentage (%)
Suffering from hypertension for a long timer	1-2	3	7,5
	2-4	24	60
	5-6	11	27,5
Degree of hypertension		2	5
	<i>Stage 1</i>	27	67,5
	<i>Stage 2</i>	13	32,5
Type of Medicine	type of therapy	Amount	Percentage (%)
Single Combination			(%)
	Amlodipin Captopril	24	60
	Amlodipin	3	7,5
	+	7	17,5
	Candesartan Amlodipin		
	+ Captopri	6	15

the final blood pressure data is categorized based on patient age, with targets set at <140/90 mmhg for patients over 60 years old and <150/90 mmhg for patients aged 60 years or younger. these results are presented in table 4 of therapy targets. Tabel 3

Table 3. Therapeutic Targets

Results end		Amount	Persentase (%)
With PIO	Target therapy achieved	17	85
	Target not achieved therapy	3	15
No PIO	Target therapy achieved	11	55
	Target not achieved		
Total		9	45
		20	100

DISCUSSION

This study was conducted on 40 hypertensive patients at the Tanjung Enim Health Center during April–May 2023 from a total population of 55 patients. The sample was divided into two groups: 20 patients received Drug Information Services (PIO), while the other 20 did not. Based on demographic data, hypertension was found to be more prevalent in men (65%) compared to women (35%), with the highest incidence occurring in the 40–49 age group (42.5%). The majority of patients had a high school education level (52.5%), and the most common occupation was self-employment (35%). Regarding the duration of hypertension diagnosis, most patients had been diagnosed for 1–2 years (60%), with stage 1 hypertension being the most prevalent (67.5%). In terms of medication use, the most frequently prescribed antihypertensive drug was Amlodipine (60%), either as a monotherapy or in combination with other drugs. The study findings revealed that patients who received PIO demonstrated a higher level of adherence. The group that received Drug Information Services (PIO) exhibited a higher level of compliance, with 45% of patients showing high adherence, compared to only 10% in the group without PIO. Statistical analysis using the chi-square test resulted in a p-value of 0.034 ($p \leq 0.05$), indicating that PIO significantly impacts patient adherence to medication. Furthermore, therapy targets were more frequently achieved in the PIO group (85%) compared to the non-PIO group (55%). These findings reinforce the important role of Drug Information Services in improving medication adherence among hypertensive patients. Therefore, the involvement of pharmacists in providing education and drug information at health centers is essential for optimizing patient therapy outcomes.

CONCLUSION

The group with PIO had a higher level of compliance (45% high compliance) than the group without PIO (10% high compliance). Statistical analysis using chi-square test showed p value = 0.034 ($p \leq 0.05$), which means that PIO has a significant effect on patient compliance in taking medication. In addition, the target therapy was achieved more in the group with PIO (85%) compared to without PIO (55%). This study confirms that Drug Information Services play an important role in increasing compliance of hypertensive patients with therapy, so the role of pharmacists is needed in providing education and drug information to patients in health centers.

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