

## Education Influence Using Leaflet Media on the Level of Knowledge, Compliance, and Therapy Outcomes in Prolanis Hypertension Patients at X Clinic Surakarta

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### ABSTRACT

Hypertension prevalence in Indonesia reached 34.4%. Chronic Disease Management Program or Program Pengelolaan Penyakit Kronis (PROLANIS) was one of the preventive and promotive strategies from BPJS, carried out to reduce or prevent complications of chronic diseases, including hypertension. Aim of this study was to determine education influence using leaflet media on the level of knowledge, compliance and therapy outcomes in prolanis hypertension patients at X Clinic, Surakarta.

Method of this study used a quasi-experimental with pre-test and post-test design with 40 patients in each control and treatment group. Knowledge level assessed using HK-LS questionnaire, compliance assessed using MARS questionnaire, and therapy outcomes collected from medical record. The results of this study showed that education using leaflet media influenced level of knowledge with a value of  $p = 0.014$ , level of taking medication adherence with a value of  $p = 0.015$  and results of systolic blood pressure therapy with a value of  $p = 0.000$ . There were an influence of education using leaflet media on the level of knowledge, compliance and therapy outcome for prolanis hypertension patients at X Clinic, Surakarta.

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## INTRODUCTION

One of the main non-infectious diseases causing early death worldwide is hypertension. According to estimates from the World Health Organization (WHO), up to 22% of all people worldwide are expected to have hypertension. Out of that percentage, just 5% make insufficient measures to control their blood pressure (RI Ministry of Health, 2019). When a person's blood pressure is high—systolic  $\geq 130$  mmHg and/or diastolic  $\geq 80$  mmHg on examination repetition—they are considered hypertensive. The primary criterion for diagnosing hypertension in a patient is the systolic blood pressure (Whelton et al., 2018).

Every year, this illness claims the lives of 1.5 million people in Asia (Widiyani and Rosmha, 2013). Based on statistics from 1990 to 2015, Indonesia emerged as one of the world's four leading contributors to hypertension rates, after China, India, and Russia (Forouzanfar et al., 2017). According to statistics from the 2016 National Health Indicator Survey, the prevalence of hypertension in Indonesia increased from 25.8% to 34.4% among those older than 18 years old with a systolic blood pressure of more than 130 mmHg.

If this illness is not treated, high blood pressure can increase endothelial artery damage over time and accelerate the development of atherosclerosis. Organ damage to the heart, eyes, kidney, brain, and large blood vessels is one of the complications associated with hypertension (Schulz et al., 2011). Reducing mortality and morbidity that are associated with damage to the target organ is the primary goal of treating hypertension (Tyashapsari and Zulkarnain, 2012).

information is one of the factors that might inspire someone to behave, and most people who behave well already possess good information. Therapy won't last very long if the behavior is not informed (Notoatmodjo, 2012). Patients who are unaware of their condition and who take medication for treatment will not adhere to their prescribed course of treatment, which will lead to non-compliance with medication intake (Fauziah and Mulyani, 2022).

For patients with chronic illnesses who require extended therapy sessions and lifestyle modifications, compliance is typically a challenge. Potentially, neglecting a patient's hypertension might lead to higher rates of morbidity, death, and healthcare expenses (Schoenthaler et al., 2009; Fung et al., 2007). Antihypertensive medications have been shown to lower blood pressure in hypertensive individuals and significantly lower their chance of cardiovascular problems. However, it has been demonstrated that using antihypertensives alone will not result in long-term blood pressure control effects if antihypertensive use is not accompanied by adherence to the prescribed course of action (Saepudin et al, 2013).

Program management disease chronic (PROLANIS) is a proactive method that integrates facility health, participant health, and behavioral health care. Chronic disease is difficult to manage, not only because of its symptoms or the care required, but also because it must be endured over an extended period of time. One important aspect of intensive treatment for patients is the ability to identify warning signs and act quickly if they feel like they are in an emergency. Facility Health Level First (Clinic) needs to take the lead in serving the community by implementing PROLANIS in conjunction with BPJS to provide coaching for patients with chronic illnesses (BPJS Health, 2014).

*Leaflets* are media in the form of sheets of paper with pictures and writing, usually containing more writing (Sabarudin *et al.*, 2020). *Leaflet* media is used as a health education media because in this media the target can be adapted to independent learning, users can see the contents while relaxing, provide more detailed information regarding information that cannot be given orally and reduce the need to take notes (Rokhmawati, 2015). Based on Ananta's research *et al.*, (2015) on hypertensive patients in the outpatient installation of RSUD A. Sjahranie using *leaflet media*, the treatment group experienced a significant reduction in blood pressure, namely  $141.60 \pm 14,341$  to  $130.40 \pm 13,989$ .

Clinic X is one of the lists of clinics in Surakarta City which operate Prolanis. Based on data year 2022, the average number of hypertensive patients who are members of Prolanis at Clinic X is 352 patients every month and the average number of hypertension patients under control is 17.33% or 61 patients every month whereas percentage average patient hypertension that uncontrolled as big as 82.67% each month.

Because of the big percentage number of uncontrolled hypertension at Clinic X Surakarta, this research is necessary to be conducted. Researcher will focus on the effect of education using *leaflet* media on the level of knowledge, adherence to taking medication, and therapy results in hypertensive prolanis patients at Clinic X Surakarta.

## LITERATURE REVIEW

According to the Indonesian Ministry of Health (2014), hypertension, also known as pressure blood tall, is defined as elevated blood pressure with a systolic blood pressure of more than 140 mmHg and a diastolic blood pressure of more than 90 mmHg in two separate measurements with a hose time of five minutes under adequate rest/calm down conditions.

Antihypertensive medications have been shown to lower blood pressure in people with hypertension and significantly lower the chance of cardiovascular problems. However, if antihypertensive medication is not accompanied by adherence to its recommended course of action, it has been demonstrated to be insufficient to generate long-term blood pressure control effects (Saepudin *et al.*, 2013). Following prescription guidelines for hypertension patients is crucial since consistent use of antihypertensive drugs helps manage blood pressure in those with the condition. in order to lower the long-term danger of harming bodily organs like the heart, kidneys, and brain (BPOM, 2006).

It can be concluded from study by Jin *et al.* (2008) that behavior based on knowledge will last longer than behavior based on assumptions. Therefore, information is crucial to enabling the public to understand why they need to take action and making it easier to influence people's behavior in a positive way (Notoatmodjo, 2012). Patients who do not understand the nature of their ailment or how to take medication for treatment may not comply with their prescribed course of treatment (Fauziah and Mulyani, 2022).

Obedience patient is a main factor that can affect successful therapy. Obedience as well as understanding Which Good in operate therapy can affects blood pressure and gradually prevents complications (Ministry of Health, 2006). Study of medication adherence in hypertensive patients is necessary carried out

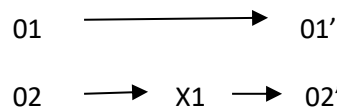
to assess the effectiveness of treatment in relation to the expectations it achieves. Controlled blood pressure, especially in outpatients who are monitored, treatment is very low by health workers. Treatment to control blood pressure is an important, but primary goal of patient management. Hypertension is to prevent and overcome the possibility of complications and repair life expectancy as well as quality of life patient (Hashmi *et al.*, 2007).

*Leaflets* are a means of disseminating health-related messages or information that are written in brief phrases, have images, are clear, succinct, and easy to comprehend. Patients who receive leaflets had higher levels of self-efficacy and self-management. Patients' knowledge is greatly increased by leaflets. Increasing patient awareness of the condition and its potential consequences can help them become more compliant and manage their blood pressure (Dewanti *et al.*, 2015). In individuals with hypertension, counseling that includes information and education using leaflets has been shown to improve compliance and lower both systolic and diastolic blood pressure (Rawi *et al.*, 2019).

## METHODOLOGY

### *Design Study*

This research was conducted in a quasi-experimental manner. According to Sastroasmoro and Ismael (2010), this research methodology uses intervention (treatment) on research subjects to ascertain the outcomes of changes (changes in variables or research objects) following treatment. Pretest - Posttest Non-Randomize Control Group Design was the quasi-experimental design that was employed. By comparing the outcomes of therapy in a group, this research design is excellent for assessing health education programs (Notoatmodjo, 2015). The following is the research design scheme: this study was conducted from July to December 2023 during clinic hours.



**Figure 1. Research Design Scheme. 01: pre-test in the control group, 01': post-test in the control group. 02: pre-test in the group that received educational treatment using leaflet media, and 02': post-test in the group that received educational treatment using leaflet media.**

### *Material of the Study*

The research materials used in this research are sources data primary Which obtained from charging questionnaire by patient hypertension prolanis. Secondary data sources are used as support for primary data in the form of medical records of hypertensive prolanis patients at Clinic X Surakarta. Data collection was carried out with giving questionnaire to patient hypertension Which willing become respondents and recorded blood pressure results from the medical records of hypertensive prolanis patients. There are some tools that have used in this study, such as:

1. *Hypertension Knowledge-Level Scale (HK-LS)*, a questionnaire designed to assess an individual's level of maturity in their understanding of

hypertension (Erkoc et al., 2012). There are six sub-dimensions and fifteen items in this questionnaire. Every item is prepared to be a part of the standard response, correct or incorrect. A right response is worth one point. The maximum score is 15, with two points deducted for definition, two for medical treatment, four for treatment obedience, four for lifestyle, two for diet, and one for complications. The HK-LS survey was translated into Indonesian and subjected to expert consultation.

2. *Medication Adherence Report Scale* (MARS) to measure obedience level for hypertension patient. MARS is questionnaire that has modified which consisted of 5 (five) questions. This questionnaire was tested for validity and reliability to ensure and convincing that instrument has valid to measure the level of compliance is a valid and reliable measuring tool so that it can be used to obtain accurate data. This questionnaire is available in Indonesian language version by Alfian and Putra (2017) which are validity and reliability tests have been carried out.
3. Record medical patient is needed to know about pressure blood patient prolans hypertension at Clinic X Surakarta.
4. *Leaflet* as a medium of information for prolans hypertension patients in order to increase knowledge and compliance with taking medication so that it can support therapeutic results in treating hypertension at Clinic X Surakarta. The *leaflet* source is taken from Riskesdas (2013) and JNC VIII (2014) which contains the meaning of hypertension, risk factors for hypertension, symptoms of hypertension, complications of hypertension, prevention and control of hypertension.

### **Population and Sample**

Patients with prolans hypertension undergoing treatment in a clinic made up the study's target population. 385 patients made up the study's population. On the other hand, the study's sample consists of hypertension patients at the Clinic who meet the study's inclusion criteria and were selected using the purposive sampling technique between July and December of 2023. The sampling formula is derived from the Slovin formula (Umar, 2011):

$$n = \frac{N}{1+N(e)^2}$$

Figure 2. Slovin Formula

Which is: n = number of samples, N = population, e = percentage of inaccuracy allowance (10%).

This formula indicates that a sample of 80 prolans hypertension patients, split into 40 groups (40 for the treatment group and 40 for the control group), is needed.

The inclusion and exclusion criteria are predetermined based on the samples. All hypertensive prolans patients without comorbidities who are able to get therapy at the clinic, who are mature enough to be over eighteen, and who are willing to participate in the study with the support of a patient consent sheet, meet the inclusion criteria. All Prolans patients having a diagnosis of hypertension as a consequence of another illness, as well as individuals with

mental disturbances or language constraints that could impede the study process, are excluded from consideration under these criteria.

### ***Validity and Reliability***

The Hypertension Knowledge-Level Scale (HK-LS) and Medication Adherence Report Scale (MARS) questionnaires were used to examine the validity and reliability of this research. The purpose of this testing is to confirm that the questionnaire is valid and reliable so that it may be used to obtain accurate data. Tests for validity and reliability have been conducted in an environment with up to 30 respondents. A higher  $r$  count value indicates that the variable has a strong correlation with other variables when testing using the Cronbach's alpha model to measure validity. Conversely, if the calculated  $r$  value is low, then the variables in the questionnaire are not valid because they have a weak correlation with other variables. When  $df = n-2$  for 30 respondents, then  $df = 30-2 = 28$ , the number  $r$  is acquired table=0.361. This is the source of the  $r$  table figure, which is derived from the  $r$  product moment table at 5% ( $\alpha=5\%$ ). If the adjusted item's value is total correlation ( $r$  count) = 0.361 for the 30 respondents, then the minimal conditions are deemed met (Azwar, 2003).

### ***Data Collection Technique***

In order to ascertain the systolic and diastolic blood pressure of hypertensive prolans patients at Clinic X Surakarta, the data collection technique in this study involved gathering pre- and post-test answers to the Hypertension questionnaire Knowledge-Level Scale (HK-LS) and Medication Adherence Report Scale (MARS), in addition to patient medical records. The counselee agreed to participate in the study by signing an informed consent form, which the researcher provided to him prior to the study's start. The respondent fills out the test form in the role of the counselee (patient with promanis hypertension).

### ***Data Analysis***

A statistical analysis is then performed on the data that has been summarized from the original data results. Both univariate and bivariate analyses were performed on the collected data. A descriptive image of the patient's features and blood pressure profile is obtained using univariate analysis. Tabular data is used to present and comprehend the data.

Using statistical tests with the SPSS software, bivariate analysis was performed to examine the relationship between the independent variable (education through leaflet media) and the dependent variable (knowledge, adherence to medication, and therapy outcomes). The following procedures are used in statistical analysis: the Person's Correlation Coefficient method and the Chronbach's Alpha method are used to test the validity and reliability; the Wilcoxon test was used to examine variations in knowledge levels, medication adherence, and outcomes of systolic and diastolic blood pressure therapy before and after education using leaflets; if the data is in ordinal form, the Mann-Whitney test is used to test the comparative hypothesis of two independent samples (Sugiyono, 2015). To be tested are the following statistical hypotheses:

$H_0$  = there is no effect between gender on knowledge after treatment.

H1 = there is an influence between gender on the level of knowledge after treatment.

The test criteria used are as follows:

If the significance value is  $> 0.05$ , then  $H_0$  is accepted and  $H_1$  is rejected.

If the significance value is  $< 0.05$ , then  $H_0$  is rejected and  $H_1$  is accepted.

## RESEARCH RESULT

### *Validity and Reliability*

Results from validation of the *Hypertension Knowledge Level Scale (HK-LS)* and *Medication Adherence Report Scale questionnaires (MARS)* can be seen in the Table 1, Table 2, and Table 3 below.

**Table 1. Knowledge Level Validity Test Results**

Question Item	r count	r table	Information	Conclusion
Question 1	0.373	0.361	r count > r table	Valid
Statement 2	0.499	0.361	r count > r table	Valid
Statement 3	0.375	0.361	r count > r table	Valid
Statement 4	0.445	0.361	r count > r table	Valid
Statement 5	0.373	0.361	r count > r table	Valid
Statement 6	0.423	0.361	r count > r table	Valid
Statement 7	0.399	0.361	r count > r table	Valid
Statement 8	0.445	0.361	r count > r table	Valid
Statement 9	0.441	0.361	r count > r table	Valid
Statement 10	0.442	0.361	r count > r table	Valid
Statement 11	0.443	0.361	r count > r table	Valid
Statement 12	0.385	0.361	r count > r table	Valid
Statement 13	0.406	0.361	r count > r table	Valid
Statement 14	0.439	0.361	r count > r table	Valid
Statement 15	0.408	0.361	r count > r table	Valid

**Table 2. Knowledge Level Reliability Test Results**

Number of Statements	Cronbach's Alpha value	Cronbach's Alpha Value Table	Conclusion
15	0.805	0.60	Reliable

**Table 3. Medication Adherence Level Validity Test Results**

Statement Items	r count	r table	Information	Conclusion
Question 1	0.392	0.361	r count > r table	Valid
Statement 2	0.531	0.361	r count > r table	Valid

Statement 3	0.464	0.361	r count > r table	Valid
Statement 4	0.634	0.361	r count > r table	Valid
Statement 5	0.483	0.361	r count > r table	Valid

**Table 4. Medication Adherence Level Reliability Test Results**

Number of Statements	Cronbach's Alpha value	Cronbach's Alpha Value Table	Conclusion
5	0.717	0.60	Reliable

**Patient Characteristics**

In this study, information was obtained regarding patient demographic data which included gender, age, education, occupation and length of suffering. The results of patient characteristics are as follows:

**Table 5. Patients Characteristics Based on Gender**

Gender	Control Group		Treatment Group	
	Number (Patients)	Percentage (%)	Number (Patients)	Percentage (%)
Man	7	17.50	6	15
Woman	33	82.50	34	85
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Table 6. Patient Characteristics Based on Age**

Age	Control Group		Treatment Group	
	Number (Patients)	Percentage (%)	Number (Patients)	Percentage (%)
26-35	0	0	0	0
36-45	1	2.50	1	2.50
46-55	9	22.50	15	37.50
56-65	27	67.50	21	52.50
>65	3	7.50	3	7.50
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Table 7. Patient Characteristics Based on Education Level**

Level of education	Control Group		Treatment Group	
	Number (Patients)	Percentage (%)	Number (Patients)	Percentage (%)
No school	1	2.50	0	0
elementary school	6	15	0	0
JUNIOR HIGH SCHOOL	6	15	3	7.50
SENIOR HIGH SCHOOL	20	50	34	85
College	7	17.50	3	7.50
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Table 8. Patient Characteristics Based on Occupation**

Work	Control Group		Treatment Group	
	Number (Patients)	Percentage (%)	Number (Patients)	Percentage (%)

Doesn't work	1	2.50	0	0
Housewife (IRT)	19	47.50	23	57.50
Retired	1	2.50	0	0
Self-employed	10	25	7	17.50
Private	9	22,500	10	25
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Table 9. Patient Characteristics Based on Length of Suffering from Hypertension**

Suffering from hypertension for a long time	Control Group		Treatment Group	
	Number (Patients)	Percentage (%)	Number (Patients)	Percentage (%)
≤ 5 years	33	82.50	31	77.50
>5 years	7	17.50	9	22.50
<b>Total</b>	<b>40</b>	<b>100</b>	<b>40</b>	<b>100</b>

**Knowledge Questionnaire Test Results**

Based on the results of the knowledge questionnaire from 40 prolans hypertension patients in the control group and 40 prolans hypertension patients in the treatment group at Clinic

**Table 10. Pre-test and Post-test Patient Knowledge Level Questionnaire**

Category	Control Group		Treatment Group	
	Pre-test	Post-test	Pre-test	Post-test
Tall	19 (47.50%)	16 (40%)	15 (37.50%)	27 (67.50%)
Currently	21 (52.50%)	24 (60%)	25 (62.50%)	13 (32.50%)
Low	0	0	0	0
<b>Total</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>

**Compliance Questionnaire Test Results**

Based on the results of the compliance questionnaire from 40 prolans hypertension patients in the control group and 40 prolans hypertension patients in the treatment group at Clinic

**Table 11. Pre-test and Post-test Patient Compliance Questionnaire**

Category	Control Group		Treatment Group	
	Pre-test	Post-test	Pre-test	Post-test
Tall	24 (60%)	27 (67.50%)	21 (52.50%)	36 (90%)
Currently	16 (40%)	13 (32.50%)	19 (47.50%)	4 (10%)
Low	0	0	0	0
<b>Total</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>

**Results of Blood Pressure Therapy in Hypertensive Patients**

Based on the average blood pressure results of 40 prolans hypertension patients in the control group and 40 prolans hypertension patients in the

treatment group at Clinic X Surakarta, the average blood pressure results were obtained which can be seen in the following table

**Table 12. Average Patient Blood Pressure**

Category	Control Group		Treatment Group	
	<i>Pre-test</i> (Systole/Diastole)	<i>Post-test</i> (Systole/Diastole)	<i>Pre-test</i> (Systole/Diastole)	<i>Post-test</i> (Systole/Diastole)
Average Blood Pressure	15 5.58 /84.23 mmHg	150.93/82.33 mmHg	149/82.83 mmHg	144.63/82.58 mmHg

***The Influence of Education using Leaflet Media on Knowledge Level***

The results of statistical analysis of the influence of education using *leaflet media* on the level of knowledge can be seen in the Table 13 below.

**Table 13. Wilcoxon and Mann Whitney test results on knowledge variables**

Category	Control Group		Treatment Group	
	<i>Pre-test</i>	<i>Post-test</i>	<i>Pre-test</i>	<i>Post-test</i>
Tall	19 (47.50%)	16 (40%)	15 (37.50%)	27 (67.50%)
Currently	21 (52.50%)	24 (60%)	25 (62.50%)	13 (32.50%)
Low	0	0	0	0
<b>Total</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>
<b>Wilcoxon Signed Ranket Test</b>	<b>P value = 0.180</b>		<b>P value = 0.001</b>	
<b>Mann Whitney test Post-Test</b>	<b>P value = 0.014</b>			

***The Influence of Education using Leaflet Media on Medication Adherence Level***

The results of statistical analysis of the influence of education using *leaflet media* on compliance levels can be seen in the table below.

**Table 14. Wilcoxon and Mann Whitney test results on compliance variables**

Category	Control Group		Treatment Group	
	<i>Pre-test</i>	<i>Post-test</i>	<i>Pre-test</i>	<i>Post-test</i>
Tall	24 (60%)	27 (67.50%)	21 (52.50%)	36 (90%)
Currently	16 (40%)	13 (32.50%)	19 (47.50%)	4 (10%)
Low	0	0	0	0
<b>Total</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>40</b>
<b>Wilcoxon Signed Ranket Test</b>	<b>P value = 0.257</b>		<b>P value = 0.001</b>	
<b>Mann Whitney test Post-Test</b>	<b>P value = 0.015</b>			

***The Influence of Education using Leaflet Media on Therapy Results***

The results of statistical analysis of the influence of education using *leaflet media* on therapy results can be seen in the table below.

**Table 15. Wilcoxon and Mann Whitney test results on systolic blood pressure outcome variables**

Category	Control Group		Treatment Group	
	Pre-test (Systole)	Post-test (Systole)	Pre-test (Systole)	Post- test (Systole)
Average Blood Pressure	155.58 mmHg	150.93 mmHg	149 mmHg	144.63 mmHg
<b>Wilcoxon test</b>	<b>P value = 0.000</b>		<b>P value = 0.000</b>	
<b>Signed Test Series</b>				
<b>Mann Whitney test</b>	<b>P value = 0.000</b>			
<b>Post-Test</b>				

## DISCUSSION

### *Validity and Reliability*

#### HK-LS Questionnaire

The purpose of the validity test is to gauge the degree of correctness between data collected from the study object and data that researchers are able to report (Sugiyono, 2016). The calculated *r* value will be shown for each statement item, and it will be compared to the *r* table. If *r* computed is more than *r* table, then a statement is considered valid (Ghozali, 2012). Since the computed *r* value is higher than the *r* table, Table 1 indicates that every statement item on the Hypertension Knowledge Level Scale (HK-LS) questionnaire is legitimate. Measuring an instrument's constancy over time is the goal of reliability testing. If a statement has a Cronbach alpha value of less than 0.60, it is considered dependable (Sugiyono, 2016). All of the Hypertension Knowledge Level Scale (HK-LS) questionnaire statement items can be considered credible since Table 2's Cronbach's alpha value  $\geq$  the table's Cronbach's alpha value. All of the statement questions in the Hypertension Knowledge Level Scale (HK-LS) questionnaire have been shown to be valid and reliable after testing for validity and reliability. Thus, the entire set of 15 items from the Hypertension Knowledge Level Scale (HK-LS) questionnaire can be employed as a gauge to ascertain the participants' level of hypertension knowledge in this research.

#### MARS Questionnaire

The Medication Adherence Report Scale questionnaire statement items (MARS) are entirely legitimate, as shown by Table 3, where the computed *r* value is higher than the table *r*. Table 4 displays the findings of the Medication Adherence Report Scale questionnaire (MARS) reliability test. Table 4 indicates that the Cronbach's alpha value is greater than the Cronbach's alpha table value, indicating the reliability of all the statement items on the Medication Adherence Report Scale questionnaire (MARS). All of the items listed on the Medication Adherence Report Scale questionnaire (MARS) have been found to be valid and reliable after validity and reliability testing. In order to assess the degree of adherence to taking hypertension medication in this study, a maximum of five items from the Medication Adherence Report Scale questionnaire (MARS) may be utilized as a measuring tool.

### **Patient Characteristics**

Data on patient demographics, such as gender, age, education, occupation, and duration of suffering, were collected for this study. Tables 5 to 9 present the outcomes of patient characteristics.

Table 5 demonstrated that there were greater numbers of female prolans hypertensive patients in both the treatment and control groups: 34 patients (85%) and 33 patients (82.50%) in the treatment group, respectively. These findings are consistent with studies by Wahyuni et al. (2018), which found that nearly twice as many women as males suffer from hypertension. Women tend to have a higher prevalence of hypertension than males do, according to Basic Health Research (Risksdas, 2013). This is due to the hormonal changes that occur during menopause in women, specifically a drop in the ratio of estrogen to androgen, which increases the release of renin and may elevate blood pressure. High Density Lipoprotein (HDL) levels are raised by the hormone estrogen, which also protects women who have not gone through menopause. High levels of low-density lipoprotein (LDL) and low levels of HDL cholesterol affect the development of atherosclerosis and raise blood pressure (Anggraini et al., 2009). Tambuwun et al.'s research from 2021 indicates that women are more adherent with hypertension therapy than men. This is feasible because, in comparison to males who are required to work as family heads, women who are mostly housewives (IRT) have more free time for treatment. Additionally, women use health services more frequently than men because they worry more about their health than men do, who are just marginally less anxious.

With an age range of 56–65 years, Table 6 revealed that there were more prolans hypertensive patients in the treatment group and control group: 21 patients (52.50%) and 27 patients (67.50%) in the treatment group. These findings are consistent with studies by Raihan et al. (2014), which found that most respondents with hypertension were older than 45. Subsequently, according per Apriyandi's (2010) research, the findings indicated that hypertension was more prevalent in the age group over 45 as opposed to the age group under 45. This is consistent with the hypothesis that, around the age of forty-five, the accumulation of collagen compounds in the muscle layer causes the artery walls to thicken, causing the blood vessels to gradually constrict and stiffen (Widharto, 2007).

Table 7 demonstrated that a greater proportion of prolans hypertensive patients in the treatment group ( $n = 34$ , or 85%) and control group ( $n = 20$ ), both had completed high school. This outcome is negatively related to Ningsih's (2017) study, which discovered that 206 respondents, or 64.4% of the sample, had poor education (no school or only elementary school). The findings are corroborated by Anggara and Prayitno's (2013) assertion that patients with low educational attainment may be more susceptible to hypertension because they may not be as knowledgeable about health issues and may find it difficult or slow to accept the information (counseling) that officers provide, which may have an effect on their behavior. wholesome way of life. Highly educated people typically have jobs, which can expose them to stress and regular routines that can lead to uncontrollably healthy eating practices. Nevertheless, this does not guarantee

that they have the right understanding and mindset. In addition, other factors, such as an individual's genetic makeup, can be to blame.

Table 8 demonstrated that a greater number of prolans hypertensive patients who were employed as housewives (IRT) were found in both the treatment group and the control group: 23 patients (57.50%) and 19 patients (47.50%) in the treatment group, respectively. These findings are consistent with research conducted by Mangendai et al. (2017), which discovered that housewives (IRT) had the greatest proportion of hypertension patients—11 patients, or 34.4%—among them. In line with Batubara's (2015) assertion that housewives are more susceptible to illness due to their sedentary lifestyles and lack of participation in sports or physically demanding jobs, this is corroborated. Hypertension is largely influenced by activity; calorie-burning physical activity raises high density lipoprotein (HDL) by 4.4 mmHg. Increased physical activity of a suitable length, intensity, and kind can considerably lower blood pressure on its own or in conjunction with treatment therapy, according to the majority of epidemiological and activity treatment research. As a tactic for controlling and preventing hypertension, increasing the amount of physical activity by 30 to 45 minutes per day is crucial (Kokkinos et al., 2009).

Table 9 demonstrated that the treatment group and the control group had a higher proportion of prolans hypertensive patients with a duration of hypertension  $\leq 5$  years: 31 patients (77.50%) and 33 patients (82.50%) in the treatment group, respectively. The length of time the respondent has had hypertension can be used to represent the duration of their treatment experience. Prior to receiving instruction, this experience is one of the variables that may affect the patient's understanding, compliance, and treatment outcomes.

### ***Knowledge Questionnaire Test Results***

Table 10 displays the pre-test knowledge questionnaire results. Since neither the control group nor the treatment group patients had received legal media education, it was discovered that both groups' knowledge levels were primarily in the medium category, with 21 (52.40%) in the control group and 25 (62.50%) in the treatment group. Additionally, leaflet media was used to educate the treatment group whereas it was not used to educate the control group. A post-test was administered to both groups one month later. The findings demonstrated that 24 (60%) patients in the control group who did not get education through leaflets nevertheless possessed a moderate degree of knowledge. In the meantime, 27 (67.50%) patients in the treatment group possessed a high level of expertise.

### ***Compliance Questionnaire Test Results***

The pre-test compliance questionnaire results, which were displayed in Table 11, revealed that neither the control group nor the treatment group's patients had received education through leaflet media. Both groups' compliance levels were primarily in the high category, with 24 patients (60%) in the control group and 21 patients (52.50%) in the treatment group. In the meantime, the control group showed an increase in compliance of 7.50%, while the treatment group showed an increase in compliance, according to the results of the post-test

questionnaire on the level of compliance, where patients in the treatment group received education using leaflet media while those in the control group did not receive education using leaflet media. of 37.50%

#### Outcomes of Blood Pressure Management in Patients with Hypertension

The average blood pressure readings for prolansis hypertension patients in the treatment group and control group were displayed in Table 12, along with the results for the control group, which did not receive any education through the use of leaflet media. During the pre-test, the mean blood pressure of patients with prolansis hypertension was 155.58/84.23 mmHg, and it measured 150.93/82.33 mmHg during the post-test. In the meantime, prolansis hypertension patients' average blood pressure was 149/82.83 mmHg at the pre-test and 144.63/82.58 mmHg at the post-test in the treatment group that received education through leaflet medium. This demonstrates that both the control and treatment groups' mean blood pressures decreased in hypertension prolansis patients.

#### *The Influence of Education using Leaflet Media on Knowledge Level*

Analysis of the control group and the treatment group was done to ascertain the impact of education through leaflet media on the degree of compliance of hypertensive prolansis patients at Clinic X Surakarta. To ascertain whether there was a difference in the averages of two unpaired samples – that is, between the treatment group and the control group – statistical analysis was performed using the Mann Whitney test. Table 14 displays the findings of a statistical analysis examining the impact of leaflet media education on compliance levels.

The results of the Wilcoxon test signed rank in the control group are displayed in Table 14 and indicate that there was no significant difference between the pre-test and post-test compliance levels ( $p = 0.257$  or  $p > 0.05$ ). On the other hand, in the treatment group,  $p = 0.001$  or  $p < 0.05$  indicates that education through leaflet media had an impact on prolansis hypertension patients' medication adherence levels both before and after treatment. A substantial difference exists between the post-test scores for the degree of compliance between the control group and the treatment group, as indicated by the Mann Whitney test post-test values of  $p = 0.015$  or  $p < 0.05$  for both groups. Therefore, it can be said that patient medication adherence increases statistically significantly when instruction is provided by leaflet media. These findings are consistent with a study conducted in 2015 by Dewanti et al., which found that providing hypertension patients with leaflets can greatly improve medication adherence ( $p < 0.05$ ).

Polanski et al. (2016) found that there is a correlation between patients' knowledge and their adherence to taking their medicine. Patients' knowledge is greatly increased by leaflets. Patients who are better informed about their condition and the possibility of complications are more likely to comply with their hypertension treatment. Patients with hypertension must adhere to their treatment plans because the condition cannot be cured and must always be managed to prevent complications that could result in death. When treating chronic conditions like hypertension that need for ongoing care, non-compliance is a prevalent issue. It has been demonstrated that antihypertensive medications

now on the market can effectively lower blood pressure in hypertensive patients while also significantly lowering their risk of cardiovascular problems. However, if antihypertensive medication use is not accompanied by adherence to the prescribed dosage, it has been demonstrated that the use of antihypertensive medications alone will not result in long-term blood pressure treatment outcomes (Saepudin et al., 2013).

### *The Influence of Education using Leaflet Media on Therapy Results*

The control group and the treatment group were used to examine the effects of education utilizing leaflet media on the outcomes of therapy for hypertension prolans patients at Clinic X Surakarta. To ascertain whether there was a difference in the averages of two unpaired samples – that is, between the treatment group and the control group – statistical analysis was performed using the Mann Whitney test. Tables 15 and 16 present the findings of a statistical investigation of how instruction through leaflet media affects therapeutic outcomes.

The control group's Wilcoxon test signed rank values were displayed in Table 15 as  $p = 0.000$  or  $p < 0.05$ , indicating a significant difference in systolic blood pressure between the pre- and post-test periods. On the other hand, in the treatment group,  $p = 0.000$  or  $p < 0.05$  indicates that education through leaflet media had an impact on hypertensive prolans patients' systolic blood pressure both before and after treatment. By using the Mann Whitney test, the post-test values for the treatment and control groups yielded values of  $p = 0.000$  or  $p < 0.05$ , indicating a significant difference in the systolic blood pressure between the two groups. Therefore, it may be said that systolic blood pressure readings are statistically affected by teaching through printed media.

The findings of Table 16's Wilcoxon test signed rank in the control group were  $p = 0.121$  or  $p \geq 0.05$ , indicating that there was no discernible difference between the diastolic blood pressure levels before and after the test. Conversely, in the treatment group,  $p = 0.690$  or  $p \geq 0.05$  indicates that there was no impact of pamphlet-based teaching on hypertensive prolans patients' diastolic blood pressure before to and following treatment. The post-test value of the degree of compliance between the control group and the treatment group was  $p = 0.969$  or  $p \geq 0.05$ , according to the Mann Whitney test, indicating that there was no significant difference between the two groups. Therefore, it may be said that there is no statistically significant impact of leaflet media education on blood pressure readings.

Tables 15 and 16 demonstrate that while education through leaflet media has no influence on diastolic blood pressure ( $p = 0.502$  or  $p > 0.05$ ), it has a significant impact on systolic blood pressure therapeutic outcomes ( $p = 0.000$  or  $p < 0.05$ ). These findings are consistent with research by Amalia (2021), which found that providing education and leaflets to hypertensive patients significantly reduced their systolic blood pressure ( $p = 0.006$ ) but had no significant effect on their diastolic blood pressure ( $p = 0.414$ ). This might be the case since both the treatment group and the control group had normal diastolic blood pressure ( $\leq 90$  mmHg) on average (James et al., 2014).

Haninditia (2016) asserts that a patient's compliance with medicine will be influenced by their level of understanding regarding hypertension. This will have an impact on the patient's blood pressure, preventing consequences including kidney problems and coronary heart disease. The degree to which a patient follows the guidelines set forth by the healthcare provider during treatment is referred to as compliance. Treatment success is influenced by patient compliance, and poor compliance prevents effective management (WHO, 2010).

## CONCLUSIONS AND RECOMMENDATIONS

Based on the results of research regarding the effect of education using *leaflet media* on the level of knowledge, adherence to taking medication and therapy results in hypertensive prolans patients at Clinic X Surakarta, it can be concluded that:

1. Education using *leaflet media* influenced the level of knowledge of hypertensive prolans patients at Clinic X Surakarta ( $p = 0.014$ ).
2. *leaflets* as media had an effect on medication adherence for prolans hypertension patients at Clinic X Surakarta ( $p = 0.015$ ).
3. Education using *leaflet media* had an effect on the results of therapy, namely reducing the primary blood pressure of hypertensive prolans patients at Clinic X Surakarta ( $p = 0.000$ ).

At the future, the research instrument does not only use a questionnaire as the sole assessment parameter, so that the assessment of the level of knowledge and adherence to taking medication becomes more accurate. Further research needs to be carried out with a larger number of respondents from a wider research location in the city of Surakarta so that it can represent a picture of the condition of hypertensive prolans patients in the city of Surakarta. Last, further research was carried out to find out other educational methods that were more appropriate to use in efforts to increase knowledge, adherence to taking medication and the results of hypertension therapy.

## ADVANCED RESEARCH

Limitations experienced in this research include:

1. Data collection uses a questionnaire so that the truth really depends on the honesty of the respondents. To anticipate this, the researcher previously explained the purpose of data collection, the respondent's consent to be interviewed so that there was no element of coercion.
2. This research was only carried out at Clinic X Surakarta. The respondents obtained may not adequately represent the description of the condition of hypertensive prolans patients in the city of Surakarta.

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