

## THE EFFECT OF AUDIOVISUAL BASED CERDIK AND PATUH EDUCATIONAL PROGRAM ON SELF-CARE OF HYPERTENSION PATIENTS IN THE WORKING AREA OF PUSKESMAS REJOSARI PEKANBARU

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### Abstract

Hypertension is a global health issue that is prevalent in developing and lower-middle-income countries, with long-term impacts such as kidney and heart damage. The Indonesia Health Survey (2023) reported a decrease in hypertension prevalence from 34.1% (2018) to 30.8% (2023). However, the incidence rate in Riau Province remains high, particularly at Rejosari Public Health Center. The contributing factors to hypertension include dietary patterns, lack of knowledge, low physical activity, stress, alcohol consumption, and smoking habits. Compliance with treatment remains low, with 53.6% of patients being non-adherent. The Ministry of Health has implemented educational programs such as CERDIK and PATUH to enhance patients' understanding and adherence in managing hypertension. This study aims to analyze the effect of audiovisual-based education on self-care Original Article / Review / Letter to Editor/ Case Study Jurnal Kesehatan e-ISSN: 2502-0439 Informasi artikel Diterima : Revisi : Diterbitkan : Korespondensi nama penulis afiliasi email **Situsi**: among hypertensive patients using a quasi-experimental design with a pretest-posttest control group. A total of 36 respondents were randomly selected from 4,464 hypertension patients. A hypertension self-care behavior questionnaire was used for data collection. The analysis results showed that the average self-care score in the intervention group increased from 82.83 (SD = 8.577) to 97.00 (SD = 4.284) after the intervention, while the control group only reached 87.11 (SD = 2.928). The Paired TTest and Independent T-Test showed significant differences, with a p-value of 0.000 (< 0.05). In conclusion, audiovisual-based CERDIK and PATUH education significantly influences the improvement of self-care among hypertensive patients. This study is expected to serve as Evidence-Based Practice (EBP) in health education and as a reference for future research.

**Keywords:** Hypertension; Self-Care ; CERDIK and PATUH Education Audiovisual .

### INTRODUCTION

Hypertension is one of the most common health problems worldwide, particularly in developing countries with low to middle economic levels. This condition can lead to serious complications, including heart disease and damage to other vital organs. According to the World Health Organization (WHO, 2023), approximately 1.28 billion people aged 30–79 years suffer from hypertension, with 46% of them unaware of their condition. The global target from 2010 to 2030 is to reduce the prevalence of hypertension by 33%.

In Indonesia, the prevalence of hypertension decreased from 34.1% in 2018 to 30.8% in 2023; however, it remains a major public health challenge. In Riau Province, the prevalence of hypertension reached 7.3%, with only 42% of patients regularly attending health check-ups. Several factors contribute to the high rate of hypertension, including unhealthy diets, lack

of physical activity, stress, smoking, and alcohol consumption. Studies have shown that treatment adherence remains low, with 53.6% of patients not following medication regimens consistently. In addition to medication adherence, self-care plays a crucial role in managing hypertension. Self-care includes maintaining a healthy lifestyle, taking prescribed medications regularly, and monitoring blood pressure periodically to prevent further complications.

To enhance awareness and compliance in hypertension management, the Indonesian government has implemented the CERDIK and PATUH educational programs. These programs aim to promote healthy behaviors through regular health check-ups, physical activity, balanced nutrition, and avoidance of risk factors such as smoking and alcohol consumption. However, a preliminary study conducted at Rejosari Public Health Center found that 40% of patients were not familiar with these programs and continued to rely on traditional remedies, such as herbal medicine, without proper blood pressure monitoring. This indicates that more effective educational interventions are still needed.

Therefore, this study aims to analyze the effect of audiovisual-based CERDIK and PATUH educational programs on self-care among hypertensive patients in the working area of Rejosari Public Health Center, Pekanbaru. Audiovisual media were chosen because they can improve understanding through an engaging combination of visual and auditory elements that are easy for the community to comprehend. The results of this study are expected to serve as a reference for developing more effective health education methods to enhance adherence and self-care among hypertensive patients.

## RESEARCH METHOD

This study employed a quantitative method with a quasi-experimental design, using a pretest-posttest control group approach. The research involved two groups: an experimental group and a control group. Both groups were given pretests and posttests to assess baseline conditions and identify differences between the experimental and control groups, in order to determine the main effect of the independent variable on the dependent variable.

The study was conducted at Rejosari Public Health Center, located in Tenayan Raya District, Pekanbaru City. The study population was obtained from data provided by the Pekanbaru City Health Office, consisting of 4,464 individuals diagnosed with hypertension. The sample was selected using a non-probability sampling method, which does not involve random selection. Specifically, the purposive sampling technique was applied to determine the sample based on specific criteria relevant to the study objectives.

The instruments used in this study included a self-care behavior questionnaire for hypertensive patients and a Standard Operating Procedure (SOP) for audiovisual media as an educational intervention tool. Data analysis was conducted to evaluate the effectiveness of audiovisual-based education in improving self-care among hypertensive patients, yielding a correlation coefficient (Swarjana, 2017).

## RESEARCH RESULTS

### A. Univariate Analysis

**Table 1. Frequency Distribution of Respondents' Characteristics Among Hypertensive Patients in the Intervention and Control Groups in the Working Area of Rejosari Public Health Center, Pekanbaru (n = 18)**

Respondents' Characteristics	Frekuensi (f)	Presentase%
<b>Age</b>		
Late adulthood (36-45 tahun)	1	5,6
Early elderly (46-55 tahun)	7	38,9
Late elderly (56-65)	6	33,3
Elderly (>65 tahun)	4	22,2
Total	18	100
<b>Gender</b>		
Male	5	27,8
Female	13	72,2
Total	18	100
<b>Education</b>		
Senior High School	16	11,1
College/University	2	88,9
Total	18	100
<b>Occupation</b>		
Unemployed	5	27,8
Entrepreneur / Self-employed	13	72,2
Total	18	100
<b>Duration of Hypertension</b>		
≤5 years	8	44,4
>5 years	10	55,6
Total	18	100

Source: Primary Data Analysis, 2025

Respondents' Characteristics	Frekuensi ( <i>f</i> )	Presentase%
<b>Age</b>		
Late adulthood (36-45 tahun)	1	5,6
Early elderly (46-55 tahun)	9	50,0
Late elderly (56-65)	6	33,3
Elderly (>65 tahun)	2	11,1
<b>Total</b>	<b>18</b>	<b>100</b>
<b>Gender</b>		
Male	6	33,3
Female	12	66,7
<b>Total</b>	<b>18</b>	<b>100</b>
<b>Education</b>		
Senior High School	14	77,8
College/University	4	22,2
<b>Total</b>	<b>18</b>	<b>100</b>
<b>Occupation</b>		
Laborer	1	5,6
Employed	3	16,7
Unemployed	5	5,6
Entrepreneur / Self-employed	13	72,2
<b>Total</b>	<b>18</b>	<b>100</b>
<b>Duration of Hypertension</b>		
≤5 years	9	50,0
>5 years	9	50,0
<b>Total</b>	<b>18</b>	<b>100</b>

Source: Primary Data Analysis, 2025

**Tabel 2. Distribution of Mean Self-Care Scores Before and After the Implementation of the CERDIK and PATUH Educational Program Among Hypertensive Patients in the Intervention Group**

	N	Mean	SD	Min	Max
<i>Pre-Test</i>	18	82,83	8,577	74	100
<i>Post-Test</i>	18	97,00	4,284	89	104

Source: Primary Data Analysis, 2025

**Table 3. Distribution of Mean Self-Care Scores Among Hypertensive Patients in the Control Group**

	N	Mean	SD	Min	Max
<i>Pre-Test</i>	18	81,94	6,690	71	96
<i>Post-Test</i>	18	87,11	2,928	83	92

Source: Primary Data Analysis, 2025

**Table 4. Distribution of Mean Self-Care Scores Before and After the Intervention in the Intervention Group**

Educational Intervention	N	Mean	SD	SE	Mean Diferens	P value
<i>Pre-Test</i>	18	82,83	8,577	2,022		
<i>Post-Test</i>	18	97,00	4,284	1,010	14,17%	0,000

Source: Primary Data Analysis, 2025

**Table 5. Distribution of Mean Self-Care Scores Before and After in the Control Group**

	N	Mean	SD	SE	Min	Max
<i>Pre-Test</i>	18	81,94	6,690	1,577	71	96
<i>Post-Test</i>	18	87,11	2,928	0,690	83	92

Source: Primary Data Analysis, 2025

**Table 6. Differences in Mean Post-Test Scores of Audiovisual-Based CERDIK and PATUH Educational Programs on Self-Care Among Hypertensive Patients in the Working Area of Rejosari Public Health Center, Pekanbaru**

Group	N	Mean	SD	SE	P value
Intervention	18	97,00	4,284	1,010	
Control	18	87,11	2,928	0,690	0,000

Source: Primary Data Analysis, 2025

## DISCUSSION

### A. Univariate Analysis

#### 1. General Data

##### a. Age

The results of this study showed that the majority of respondents in both the intervention and control groups were in the early elderly age range (46–55 years). This finding is consistent with the study by Nuraeni (2019), which revealed that individuals

aged 45 years and older have an 8.4 times higher risk of developing hypertension compared to younger age groups. The increase in blood pressure among the elderly occurs due to structural changes in the arteries, which become wider and stiffer, as well as disturbances in neurohormonal mechanisms, such as the renin–angiotensin–aldosterone system, which contribute to elevated blood pressure.

This finding is also supported by Podungge (2020), who stated that the natural degenerative process in individuals aged 40 years and above leads to arterial wall thickening caused by collagen accumulation in the muscle layer. This condition results in narrowing and stiffening of the blood vessels, ultimately contributing to increased blood pressure. As age increases, calcium metabolism also becomes disrupted, causing more calcium to circulate in the blood, which in turn increases blood viscosity and blood pressure (Nugroho & Sari, 2019).

In addition, increased peripheral resistance, enhanced sympathetic nervous system activity, and reduced baroreceptor sensitivity are other contributing factors to higher blood pressure in older adults (Widjaya et al., 2019). These conditions can lead to aortic regurgitation and accelerate degenerative changes in the cardiovascular system.

Based on the results of this study and the researcher's assumptions, there is a strong relationship between age and hypertension, where collagen accumulation and decreased vascular elasticity cause arterial narrowing, resulting in increased blood pressure. Therefore, hypertension is more prevalent among the early elderly group, making age a non-modifiable risk factor, although it can still be managed through preventive measures and healthy lifestyle modifications.

b. Gender

The results of the study showed that the majority of respondents in both the intervention and control groups were female, accounting for 72.2% and 66.7%, respectively. This finding is consistent with the study by Adila and Mustika (2023), which found a significant relationship between gender and the incidence of hypertension among patients, with  $p = 0.000$  ( $p < 0.05$ ). The decrease in estrogen levels in postmenopausal women is a key factor contributing to increased blood pressure, leading to hypertension. This result is also supported by Falah (2019), who stated that women, particularly those who are postmenopausal, tend to have a higher risk of developing hypertension than men. This is due to a decline in estrogen levels, which play a role in increasing High-Density Lipoprotein (HDL) levels that help protect blood vessels. The reduction of HDL levels increases the risk of atherosclerosis and hypertension. In addition to hormonal factors, women are also more prone to obesity, which is a significant risk factor for hypertension. Falah (2019) found that 24% of adult women were obese, compared to 14.9% of men.

Overall, this study confirms the relationship between gender and hypertension, particularly among postmenopausal women who experience a decline in estrogen levels, which can trigger an increase in blood pressure. This finding is in line with the results showing that the majority of hypertension cases occurred in the early elderly age

group.

c. Education

The results of the study showed that the majority of respondents in both the intervention and control groups had a senior high school education, accounting for 88.9% and 77.8%, respectively. This finding is consistent with the study by Mardiana et al. (2021), which stated that education is an important factor reflecting an individual's social status and plays a key role in decision-making. The higher a person's level of education, the easier it is for them to receive information and respond appropriately to the problems they face.

This study also revealed that a low level of education may be a risk factor for hypertension. Individuals with lower education tend to have limited understanding of the importance of regular health check-ups and information related to hypertension. They also find it more difficult to accept health education delivered by medical personnel, which can lead to unhealthy lifestyle behaviors (Nugroho & Sari, 2019).

However, a higher education level does not always guarantee better knowledge. Knowledge can be acquired through various means, both formal and informal, such as personal experiences or self-initiative (Dhirisma & Moerdhanti, 2022). According to the researcher, the level of education may influence how individuals think about their health, shape their behavior in maintaining a healthy lifestyle, and determine their decision to seek medical care at health facilities.

d. Occupation

The results of the study showed that the majority of respondents in both the intervention and control groups worked as entrepreneurs, accounting for 72.2% in each group. This finding is consistent with the study by Diba et al. (2023), which found that most respondents engaged in self-employment experienced work-related stress and lack of time for exercise, leading to fat accumulation in the body as well as stiff and narrowed blood vessels.

Jobs that involve limited physical activity can increase the risk of hypertension. According to Ginting et al. (2024), individuals who perform work with higher levels of physical activity tend to be more protected against hypertension compared to those in more sedentary occupations.

A lack of physical activity can lead to an increased heart rate, forcing the heart muscle to work harder and raising blood pressure (Ramdhika et al., 2023). Moreover, a sedentary lifestyle can cause overweight or obesity, which further increases the risk of hypertension. According to the researcher, entrepreneurial occupations may contribute to an increased risk of hypertension, as they often involve stressful workloads and insufficient time for exercise, both of which can lead to elevated blood pressure.

e. Duration of Hypertension

The results of the study showed that the majority of respondents in the intervention group had been suffering from hypertension for more than 5 years (55.6%), while in the control group, the distribution between those with a duration of more or less than 5

years was almost equal (50.0%). This finding is consistent with the study by Oktaviana and Syamdarniati (2022), which stated that most respondents with a hypertension duration of more than five years experienced the condition due to unhealthy lifestyles and irregular eating patterns, which further worsened their health status.

A longer duration of illness influences patients' knowledge and disease management, particularly among the elderly. Older adults who have lived with hypertension for a longer time tend to have better understanding of how to manage hypertensive episodes and avoid triggering factors, such as high-fat foods that can increase cholesterol levels, cause plaque buildup in the arterial walls, and raise blood pressure (Nurfitasari et al., 2023).

According to Rusminingsih et al. (2021), the length of time suffering from a disease is associated with an individual's experience in managing the illness. Positive experiences can increase motivation to adhere to treatment and maintain blood pressure, whereas negative experiences may reduce motivation to care for one's health.

The researcher assumes that the duration of hypertension is related to self-care behavior, as individuals who have suffered from hypertension for a longer period tend to have more experience in self-management and are better able to maintain a healthy diet and lifestyle.

f. Specific Data

The results of the study showed a significant increase in the mean self-care score in the intervention group, from 82.83 (pretest) to 97.00 (posttest), while the control group only reached a mean score of 87.11. This finding is consistent with the study by Laili et al. (2023), which demonstrated that after receiving education, most respondents had good knowledge about stroke prevention among patients with hypertension through the CERDIK program, which can help reduce disease complications if patients modify their behavior and lifestyle.

Hypertension treatment requires a long period of time, and its success is highly dependent on the patient's self-care. Sari et al. (2023) stated that good self-care plays a vital role in controlling blood pressure, with education focusing on improving knowledge and building patients' confidence to make the necessary behavioral changes. The researcher assumes that audiovisual-based CERDIK education can improve self-care among patients with hypertension, as it helps enhance patients' understanding and confidence in performing effective self-management.

B. Bivariate Analysis

The results of the study showed a significant increase in the mean score of the intervention group, with an improvement of 14.17 points (from a pre-test score of 82.83 to a post-test score of 97.00). Meanwhile, the control group showed an increase of 5.17 points (from a pre-test score of 81.94 to a post-test score of 87.11). Statistical testing revealed a  $p$ -value = 0.000 < 0.05, indicating a significant difference in the effect of the audiovisual-based CERDIK and PATUH education program on the self-care of patients with hypertension in the working area

of Puskesmas Rejosari Pekanbaru. The practical significance difference ( $\Delta$ ) for the intervention group was 7.87%, while for the control group it was 3.11%, showing that the intervention group was more effective in improving self-care knowledge.

This finding is consistent with Alendra et al. (2024), who found that the socialization of the CERDIK and PATUH programs conducted at Posbindu and village offices with support from community health centers and village funds was effective in promoting healthy habits for hypertension prevention. Similarly, Supriyatn and Novitasari (2022) reported that CERDIK behaviors were associated with blood pressure management among *Prolanis* participants, demonstrating that health programs can improve clean and healthy living behaviors while reducing the risk of non-communicable diseases.

Self-care among individuals with hypertension involves adopting healthy lifestyle changes, such as maintaining a low-salt diet, reducing cholesterol intake, avoiding alcohol, and managing stress. Ulya et al. (2023) identified barriers to self-care practices, including a lack of time for medical check-ups, boredom in following dietary restrictions, and medication adherence issues.

The researcher assumes that providing education through the audiovisual-based CERDIK and PATUH program has a significant effect on improving self-care among hypertensive patients. This education helps patients become more consistent in monitoring their blood pressure, maintaining a healthy diet, and engaging in regular physical activities, such as exercise, to promote overall health.

## CONCLUSION

1. Respondent Characteristics: Based on data from 36 respondents, most participants were in the early elderly age group (46–55 years), totaling 16 respondents (44.4%). The majority were female (25 respondents, 69.4%), most had a senior high school education (30 respondents, 83.3%), and most worked as entrepreneurs (26 respondents, 72.2%). Additionally, most respondents had been diagnosed with hypertension for more than 5 years (19 respondents, 52.8%).
2. Intervention Group: The mean self-care score in the intervention group before the intervention (pretest) was 82.83 with a standard deviation of 8.577, and after the intervention (posttest) it increased to 97.00 with a standard deviation of 4.284.
3. Control Group: The mean self-care score in the control group before the intervention (pretest) was 81.94 with a standard deviation of 6.690, and after the intervention (posttest) it was 87.11 with a standard deviation of 2.928.
4. Significant Difference: The statistical test showed a  $p$ -value = 0.000  $<$  0.05, indicating a significant difference in the effect of the CERDIK and PATUH audiovisual-based education program on the self-care behavior of patients with hypertension. The intervention group demonstrated a greater improvement (7.87%) compared to the control group (3.11%).

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