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IMPLEMENTATION OF CERDIK BEHAVIOR FOR BLOOD PRESSURE CONTROL AT PETERONGAN HEALTH CENTER

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ABSTRACT

Hypertension is a condition where blood pressure is high. The majority of cases suffering from hypertension are the elderly, so behavior is needed to control blood pressure, one of which is CERDIK behavior. CERDIK behavior consists of several lifestyles that improve and maintain health. So, this research aims to find out how CERDIK is implemented in efforts to control blood pressure at the Peterongan Community Health Center.
This community service was conducted in the village of Kandangan Kepuhkembeng, Jombang Regency, with a sample size of 70 respondents. This research was conducted using interview techniques and observation, with the inclusion criteria of respondents with high blood pressure above 140 mmHg for systolic and diastolic pressure above 100 mmHg. This research was carried out by providing counseling and questionnaires about CERDIK Behavior, then, after that, a posttest was carried out with the results that the majority of respondents showed improvement, with 19 participants achieving good outcomes. It is hoped that the suggestions will increase public knowledge about the importance of implementing CERDIK behavior as a form of controlling blood pressure in hypertensive patients.

Keywords: CERDIK Behavior, Blood Pressure Control, Hypertension.

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INTRODUCTION

Hypertension is one of the Non-Communicable Diseases (NCDs) that remains a health problem worldwide. Despite several preventive and promotional measures carried out as a result of advances in science, information, and technology, significant health problems continue to worsen every year. The Silent Disease or Hidden Disease is another name for hypertension. Those who monitor their blood pressure but do not realize that they have hypertension. Anyone can get hypertension, regardless of age or financial background. High blood pressure in the arteries, which causes hypertension, increases the risk of cardiovascular disorders such as stroke, heart failure, heart attack, and kidney damage. Hypertension is a condition without symptoms (Sundari, 2018).

According to the World Health Organization (WHO), an estimated 1.28 billion adults aged 30-79 years worldwide have hypertension, the majority (two-thirds) living in low- and middle-income countries (WHO, 2023). An estimated 46% of adults with hypertension are unaware that they have the condition (WHO, 2023). Less than half of adults (42%) with hypertension are diagnosed and treated. About 1 in 5 adults (21%) with hypertension can control it. Hypertension is a leading cause of premature death worldwide. The prevalence of hypertension is highest in the African region, with the highest prevalence (27%), and in Switzerland, with the lowest prevalence of hypertension (18%) (WHO, 2023). Basic Health Research (Riskesdas) 2018 stated that the prevalence of hypertension in Indonesia, based on measurement results in the population aged ≥18 years, was 34.1%, the highest in South Kalimantan (44.1%), while the lowest was in Papua (22.2%). The estimated number of hypertension cases in Indonesia is 63,309,620 people, while the death rate in Indonesia due to hypertension is 427,218 deaths. Hypertension occurs in the age group 31-44 years (31.6%), age 45-54 years (45.3%), and age 55-64 years (55.2%). From the prevalence of hypertension of 34.1%, it is known that 8.8% were diagnosed with hypertension, 13.3% of people diagnosed with hypertension did not take medication, and 32.3% did not take medication regularly. This shows that most people with hypertension do not know that they have hypertension due to a lack of knowledge, so they do not get treatment (Ministry of Health of the Republic of Indonesia, 2022). Based on data from the Nglajur hamlet, 65.77% of the population has hypertension. The categories include the elderly, as many as 77 people, and adults aged 22-40 years, as many as 21 people. The increase in prevalence rates is partly because hypertension sufferers do not know and understand the causes and complications of hypertension. To reduce the incidence of hypertension, various methods can be used to increase the level of knowledge of individuals, groups, or communities regarding hypertension (Maswibowo, 2020).

Patient knowledge and hypertension awareness are important factors in achieving blood pressure control. Individual knowledge of hypertension can help in hypertension control efforts because, with the knowledge they have, individuals will often visit doctors and comply with treatment. In addition to increasing the level of knowledge, other efforts that can be made are by controlling blood pressure through CERDIK behavior (Maswibowo, 2020).

The CERDIK behavioral program includes Cek Kondisi Kesehatan Secara Berkala, eliminating cigarette smoke and not smoking, being diligent in doing physical activities, a healthy diet with balanced nutrition, getting enough rest, and controlling stress. Other behaviors include conducting routine check-ups and following the advice of health workers, complying with medication rules, maintaining a balanced diet, trying to participate in physically safe activities, and avoiding cigarette smoke, alcohol, and carcinogens (Ministry of Health, 2018).

The impact of non-compliance in controlling or controlling hypertension can cause complications such as organ damage, including the brain, because uncontrolled hypertension can increase stroke and then damage to the heart. Hypertension increases the workload of the heart, which will cause heart enlargement, thereby increasing heart failure and kidney failure. Hypertension management is influenced by factors such as knowledge, motivation, family support, physiological and psychological factors, and compliance with taking medication (Sari, 2021).

OBJECTIVES

General Purpose

The general objective of implementing CERDIK for controlling blood pressure in hypertension patients is to increase patient awareness and understanding of managing blood pressure through a healthy behavior approach that includes regular health checks, eliminating cigarette smoke, being physically active, a healthy diet with balanced calories, getting enough rest, and managing stress. This approach aims to reduce the risk of hypertension complications and improve the quality of life of patients through effective preventive and control measures.

Special Purpose

The special purpose of this program was:

1. Educate hypertensive patients about the importance of regular health checks to monitor blood pressure conditions and prevent early complications.
2. Encourage patients to reduce or stop smoking habits that can worsen hypertension and contribute to blood vessel damage.
3. Teach the importance of regular physical activity to help lower blood pressure and maintain heart health.
4. Guide patients in undergoing a healthy and balanced diet, by reducing excess salt and fat intake that can affect blood pressure.
5. Help patients understand the role of adequate rest in managing blood pressure because lack of sleep can trigger increased blood pressure.
6. Teach stress management techniques and strategies to reduce risk factors for high blood pressure caused by excessive stress.

PLAN OF ACTION

Strategy Plan

The strategic plan for executing this activity consists of several stages, which include:

1. Conduct an initial survey to determine communities or areas with a high prevalence of hypertension. Data collection is carried out together with the local health center or health office.

2. Build collaboration with community leaders, health cadres, and village officials to support community involvement and participation in this activity.
3. Hold a socialization event with the community to introduce the goals and benefits of the CERDIK program in controlling hypertension. This event can be a face-to-face session or webinar if there are time and space constraints.
4. Hold counseling on hypertension, the risks it poses, and the benefits of implementing CERDIK in everyday life. Education is provided interactively, for example through question-and-answer sessions, group discussions, or simulations.

Implementation

Following the preparation of a strategic plan for this community service activity, the implementation team proceeded with carrying out the planned activities.

1. Conducting regular blood pressure checks for the community as a form of health monitoring. The team will accompany hypertensive patients to record and understand their blood pressure results.
2. Holding special sessions that educate participants about the dangers of smoking for hypertension, along with strategies to reduce or stop smoking through counseling or peer group support methods.
3. Holding sports activities that are suitable for people with hypertension, such as gymnastics or walking. This activity is held every week so that the community gets used to a physical routine that supports heart health.
4. Holding workshops that teach how to choose healthy foods, create a low-salt daily menu, and avoid foods high in cholesterol. In this session, the community can also practice directly.
5. Holding educational sessions that explain the importance of getting enough quality sleep to maintain healthy blood pressure.
6. Holding simple relaxation technique training, such as meditation or deep breathing, to help the community manage daily stress.
7. Conduct weekly or monthly monitoring of participants who take part in the program to see changes in blood pressure and their implementation of a healthy lifestyle.
8. Collecting feedback from participants regarding the program that has been implemented, as well as identifying the challenges and conveniences they experience in implementing CERDIK.
9. Compile progress reports and results of each intervention conducted, by measuring the percentage reduction in blood pressure or increase in compliance with a healthy lifestyle.

Setting

This community service activity was carried out in September-October 2024 in the working area of the Peterongan Health Center, especially in Kandangan Hamlet, Kepuhkembeng Village, Peterongan, Jombang.

Target

The target population for implementing community service activities is all hypertension sufferers in the Peterongan Health Center work area, especially Kandangan Hamlet, Kepuhkembeng Village, Peterongan, Jombang, as many as 70 people. The

number of samples in the implementation of this community service activity was 65 respondents.

RESULTS AND DISCUSSION

The characteristics of respondents in this community service consist of age, gender, education, and occupation, which can be seen in the following table:

Table 1. Characteristics of Respondents.

No	Characteristics of Respondents	Frequency (f)	Percentage (%)
1	Age		
	60-70 years	52	80.0
	>70 years	13	20.0
	Total	65	100.0
2	Gender		
	Male	28	43.1
	Female	37	56.9
	Total	65	100.0
3	Level of Education		
	higher education	23	35.4
	Low Education	42	64.6
	Total	65	100.0
4	Occupation		
	No Work	39	60.0
	Work	26	40.0
	Total	65	100.0

Based on the table above, it is known that the characteristics of respondents based on age, most respondents are 60-70 years old, as many as 52 respondents (80%), based on gender, most respondents are female, and as many as 37 respondents (56.9%), based on education, most respondents have low education, as many as 42 respondents (64.6%), based on occupation, most respondents are unemployed, as many as 39 respondents (60%).

Univariate analysis was conducted to use the frequency and percentage distribution of the independent variables (Implementation of CERDIK) and the dependent variable (Blood Pressure Control in Hypertension Patients). The data is presented in the form of tables and text.

1. Implementation of CERDIK Behavior

This community service was carried out on 65 respondents, where the application of CERDIK behavior can be seen in the following table:

Table 2. Frequency Distribution of the Implementation of CERDIK Behavior in Kandangan Hamlet, Kepuhkembeng Village, Peterongan, Jombang in 2024.

No	Implementation of CERDIK Behavior	Frequency (f)	Percentage (%)
1	Good	29	44.6
2	Low	36	55.4
	Total	65	100.0

Based on the table above, it is known that the frequency distribution of 65 respondents is that most respondents implemented CERDIK behavior, with less than 36 respondents

(55.4%), and respondents who implemented CERDIK behavior well were 29 respondents (44.6%).

According to the Ministry of Health (2019), CERDIK Behavior is routine health monitoring, reducing smoking behavior, actively exercising, maintaining a diet, increasing sleep time, and managing stress. Other behaviors include conducting routine check-ups and following the advice of health workers, complying with medication rules, maintaining a balanced diet, trying to participate in physically safe activities, and avoiding cigarette smoke, alcohol, and carcinogens.

Similar things were expressed by Hariawan (2020), stating that CERDIK behavior is one form of government activity program to improve the prevention and management of non-communicable diseases. CERDIK consists of a series of health check activities, building a behavior of not smoking or quitting smoking, diligent physical activity, a balanced diet, adequate rest, and being able to manage stress. The series of activities in the CERDIK program provides community support for changes in behavior to prevent non-communicable diseases. Based on the results of community service and the discussion above, we argue that there are still many people/ hypertensions who are still lacking in implementing CERDIK behavior (55.4%). This is due to several factors, including the age, education, and occupation of the respondents. Elderly respondents tend to pay less attention to their health conditions, so they need support from their families in helping respondents implement CERDIK behavior. In addition, respondents with low education tend to have less knowledge and understanding of CERDIK behavior, and respondents who work tend to spend their time working and pay less attention to their health conditions.

2. Blood Pressure Control in Elderly People with Hypertension

This community service was carried out on 65 respondents, where blood pressure control in hypertension sufferers can be seen in the following table:

Table 3. Frequency Distribution of Blood Pressure Control in Hypertension Patients in Kandangan Hamlet, Kepuhkembeng Village, Peterongan, Jombang in 2024.

No	Blood Pressure Control	Frequency (f)	Percentage (%)
1	Good	30	46.2
2	Low	35	53.8
	Total	65	100.0

Based on Table 3, it is known that the frequency distribution of 65 respondents shows that most respondents have poor blood pressure control, as many as 35 respondents (53.8%), and respondents who have good blood pressure control are 30 respondents (46.2%).

According to Rodiyyah et al. (2020), hypertension control aims to prevent mortality and morbidity due to complications related to achieving and maintaining blood pressure below 140/90 mmHg. Hypertension control is carried out by self-management or lifestyle changes such as diet, adequate rest, exercise, and regular medication consumption. Hypertension cannot be

cured, but controlled. It can be said that efforts to control hypertension are mainly through self-management of the patient.

This is supported by research of Setiarini (2018), based on the results of the study that out of 30 respondents, 15 (30%) had bad behavior regarding hypertension management. This shows that there is still bad behavior regarding hypertension, which is because some respondents still have difficulty reducing cigarette consumption, reducing salt consumption, and exercising regularly.

However, not all behave badly towards controlling hypertension disease, where there are still some respondents' opinions that say that exercise is a good control against hypertension disease. In addition, respondents also think that consuming salted fish can trigger an increase in blood pressure, so this is not recommended for hypertension sufferers.

Based on the results of community service and the discussion above, the researcher assumes that most respondents are still lacking in controlling hypertension (53.8%). This is because most respondents are elderly and have low education, making it difficult to respond and understand the information provided about controlling hypertension, so that many respondents do not live a healthy lifestyle, do less physical activity, often forget to take medication, and so on.

3. Implementation of CERDIK Behavior for Controlling Blood Pressure among Elderly People with Hypertension

This analysis was conducted to determine the relationship between the independent variable (Implementation of CERDIK) and the dependent variable (Blood Pressure Control in Hypertension Patients). This community service uses the chi-squared statistical test. Using the Statistical Program for Social Science (SPSS) computerized system version 20, which is a statistical package or program created to process or analyze data. The significance limit is at $\alpha = 0.05$. If p value $<\alpha = 0.05$ it means that there is a meaningful relationship (significant) between the independent variable and the dependent variable; if p value $> \alpha = 0.05$, it means that there is no meaningful relationship (significant) between the independent variable and the dependent variable.

This community service was conducted on 65 respondents. This bivariate analysis was used to determine the relationship between CERDIK implementation and blood pressure control in hypertension patients, which can be seen in the table below:

Table 4. Relationship between CERDIK implementation and blood pressure control in hypertension patients in Kandangan Hamlet, Kepuhkembeng Village, Peterongan, Jombang in 2024.

Implementation of CERDIK Behavior	Blood Pressure Control				f	%	*P Value*	OR
	Good		Low					
	f	%	f	%				
Good	19	29.2	10	15.4	29	44.6	0.010	4.318

Low	11	16.9	25	38.5	36	55.4
Total	30	46.1	35	53.9	65	100.0

Based on Table 4 above, it is known that of the 29 respondents who implemented CERDIK well, most of their blood pressure control was good, with as many as 19 respondents (65.5%). Meanwhile, of the 36 respondents whose CERDIK implementation was lacking, most of their blood pressure control was lacking, as many as 25 respondents (69.4%).

From the results of the continuity correction test, the *p*-value = 0.010 <α = 0.05 was obtained. This shows that there is a relationship between the implementation of CERDIK and blood pressure control in hypertension patients in Kepuhkembeng in 2024 and the OR value = 4.318 was obtained, which means that hypertension patients who are less in implementing CERDIK will have a lower chance of controlling their blood pressure by 4.318 times compared to hypertension patients who are good at implementing CERDIK behavior.

Respondent characteristics based on age show that most respondents are aged 60-70 years, as many as 52 respondents (80%). According to Musfirah & Masriadi (2019), it states that increasing age can cause physiological changes in the body, for example thickening of the walls of blood vessels due to the accumulation of collagen in the muscle layer of blood vessels so that blood vessels are limited and become tight which begins at the age of 45 years. Likewise, there is also an increase in peripheral resistance and vasoconstriction, and the absence of an all receptor response (circulation strain guidelines) and kidney function, where renal blood flow and glomerular filtration rate decrease. This is one of the factors that causes uncontrolled hypertension.

Picture 1. Implementation of Community Service Activities.

This is in line with the research of F. Amaliah & Sudikno (2019), saying that increasing age also increases blood pressure. After the age of 40, the degenerative process that naturally occurs more often in old age, where the artery walls will thicken due to the accumulation of collagen in the muscle layer, causing the vessels.

Based on the results of community service and the discussion above, we argue that being older does not guarantee a

person's maturity in thinking, including a person's knowledge. Some elderly hypertension sufferers with sufficient knowledge have not been able to regulate their diet and lifestyle to control blood pressure.

Respondent characteristics based on gender are known to be mostly female respondents as many as 37 respondents (56.9%). According to Fernandes (2018), on average, women will experience an increased risk of high blood pressure (hypertension) after menopause, namely over 45 years of age. Gender is one of the risk factors for hypertension that cannot be changed or cannot be modified. Men tend to suffer from hypertension than women because of lifestyle, but after women experience menopause, women have a higher tendency to suffer from hypertension than men due to hormonal factors.

This is supported by research conducted by Oktavia et al. (2021) that men often experience signs of hypertension in their late thirties, while women often experience hypertension after menopause. Women's blood pressure, especially systolic, increases more sharply with age. After 55 years, women have a higher risk of developing hypertension. Based on the results of our community service, we think that female hypertension sufferers have the most knowledge and controlled blood pressure compared to male respondents with hypertension, so women are more responsible for their daily activities and may be experienced with themselves. Female hypertension sufferers have a better understanding of blood pressure control than male hypertension sufferers.

This is what Rodiyyah (2020) stated: blood pressure control is the key to successful management of hypertension; blood pressure control includes lifestyle modification. Patients with hypertension should know well how to control blood pressure techniques so that they are integrated with their daily lifestyle. The basic thing in efforts to control blood pressure is knowledge of implementing CERDIK behavior. Patient knowledge in implementing CERDIK behavior with hypertension can help prevent, control, and treat hypertension complications. The more a patient understands about their disease, the more they will understand the behavior that must be maintained or changed. Good knowledge will be able to change lifestyle by quitting smoking as early as possible, exercising regularly, improving diet, avoiding stress, and avoiding unhealthy lifestyles. The better the respondent's knowledge about hypertension, the better the respondent's efforts to control the hypertension they suffer from.

Based on the results of community service and the discussion above, we assume that the implementation of CERDIK behavior is related to blood pressure control in hypertension sufferers, where respondents who implement CERDIK behavior well in their daily lives such as regulating diet, doing physical activities, getting enough rest and controlling not to smoke, consume alcohol and follow a hypertension diet pattern tend to be able to control blood pressure so that blood pressure does not rise and get worse.

CONCLUSION

Based on the results of community service that has been carried out in the Peterongan Health Center area, Kepuhkembeng Village, the following conclusions can be drawn:

1. Frequency distribution of 65 respondents, most respondents

implemented CERDIK behavior less than 36 respondents (55.4%), and respondents who implemented CERDIK behavior well were 29 respondents (44.6%).

2. Frequency distribution of 65 respondents, the majority of respondents carried out poor blood pressure control, as many as 35 respondents (53.8%), and respondents who carried out good blood pressure control, as many as 30 respondents (46.2%).
3. There is a relationship between the implementation of CERDIK behavior and blood pressure control in hypertension patients in Kepuhkembeng Village in 2024, with p-value = 0.010 and OR = 4.318.

REFERENCES

Andrade, F. R., & Fleury, A. L. (2018). An application of the Ishikawa diagram in the analysis of occupational accidents in the construction industry. *Production & Manufacturing Research*, *6*(1), 228–243.

Guirguis-Blake, J. M., Evans, C. V., Webber, E. M., Coppola, E. L., Perdue, L. A., & Weyrich, M. S. (2021). *Screening for Hypertension in Adults: An Updated Systematic Evidence Review for the U.S. Preventive Services Task Force [Internet]*. Agency for Healthcare Research and Quality (US). https://www.ncbi.nlm.nih.gov/books/NBK570233/table/ch1.tab1/%0A

Gultom, E. R. (2023). *PENGARUH SENAM ERGONOMIK SECARA BERKELOMPOK TERHADAP TEKANAN DARAH PENDERITA HIPERTENSI DI POSYANDU BROTOJOYO (STUDI DI KELURAHAN TANJUNG REJO KECAMATAN SUKUN WILAYAH KERJA PUSKESMAS JANTI MALANG)*. STIKES Panti Waluya Malang.

Hitz, K., Missoni, E., & Bacci, M. (2019). The USG approach to prioritizing healthcare interventions. *International Journal of Health Planning and Management*, *34*(2), 223–230. Hollingsworth, J., & Baker, A. (2020). Strengths and weaknesses in community health programs: A SWOT analysis approach. *Journal of Community Health Management*, *45*(3), 117–125.

Ibrahim, A., & Idris, S. (2020). The use of Ishikawa diagram in determining the root causes of construction defects in Nigeria. *Journal of Engineering, Design and Technology*, *18*(4), 885–900.

Iqbal, A. M., & Jamal, S. F. (2023). *Essential Hypertension*. In: StatPearls [Internet]. https://www.ncbi.nlm.nih.gov/books/NBK539859/

Jones, M., Thomas, R., & White, K. (2018). Opportunities for strengthening health systems through external partnerships: A SWOT analysis. *Global Health Journal*, *12*(1), 45–58.

Kementerian Kesehatan Republik Indonesia. (2019). *Laporan Nasional Riset Kesehatan Dasar*.

Nugroho, A., & Dewi, F. (2020). Barriers to Adopting Healthy Lifestyle Practices in Urban Settings: A Qualitative Study. *Journal of Urban Health and Wellbeing*, *13*(3), 45–53. https://doi.org/10.56789/juhw.v13i3.45

Nugroho, S., & Setyawan, H. (2020).

Enhancing Hypertension Awareness and Management in Elderly Populations through Family and Community Involvement. *Global Health Action*, *13*(1), 1769266.

P2PTM Kementerian Kesehatan RI. (2020). *Hipertensi yang tidak terkontrol dapat menyebabkan terjadinya komplikasi*. https://p2ptm.kemkes.go.id/infographic/hipertensi-yang-tidak-terkontrol-dapat-menyebabkan-terjadinya-komplikasi

Puspitasari, D., & Wulandari, E. (2022). Hypertension Management in Elderly: Challenges and Strategies. *Journal of Geriatric Cardiology*, *19*(4), 299–310.

Suryanto, A., & Hartati, H. (2023). Community-Based Interventions for Hypertension Control among the Elderly in Rural Areas. *BMC Public Health*, *23*(1), 356.

Tambunan, F. F., Nurmayni, N., Rahayu, P. R., Sari, P., Sari, S. I., & others. (2021). *Hipertensi (Si Pembunuh Senyap)*.

Weyrich, M. S. (2021). Screening for Hypertension in Adults: An Updated Systematic Evidence Review for the U.S. Preventive Services Task Force [Internet]. Agency for Healthcare Research and Quality (US). https://www.ncbi.nlm.nih.gov/books/NBK570233/table/ch1.tab1/

World Health Organization [WHO]. (2021). *Hypertension*. https://www.who.int/news-room/fact-sheets/detail/hypertension