

Correlation of Knowledge Level and Stroke Prevention Efforts in Hypertension Patients in the Working Area of Samadua Health Center, South Aceh Regency

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Abstract: The purpose of this study was to find out how the level of knowledge of hypertension patients is related to stroke prevention efforts in the working area of the Samadua Health Center, South Aceh district. This study was a type of correlative descriptive research with a cross-sectional approach with chi-square test. Sampling was done using the purposive sampling method by distributing a questionnaire as an instrument and the analysis was carried out with the chi square test. The sample in this study is 50 hypertensive patients who are outpatients in the working area of the Samadua Health Center, South Aceh Regency. The results showed that ($p=0.001$), meaning that there was a relationship between the knowledge of hypertension patients and efforts to prevent stroke events. The conclusion shows that there is a relationship between the knowledge of hypertension patients and efforts to prevent stroke incidence. Respondents should focus more on their health, particularly during early exams, and broaden their understanding of stroke prevention caused by excessive blood pressure.

Keywords: Blood Pressure; Hypertension; Knowledge; Prevention; Stroke.

Introduction

Hypertension is defined as a condition in which an individual's systolic blood pressure is ≥ 140 mmHg and/or diastolic blood pressure is ≥ 90 mmHg (Ramzy, 2019). Persistently elevated blood pressure can damage the arterial endothelium and accelerate the development of atherosclerosis. Its complications may involve damage to vital organs such as the heart, eyes, kidneys, brain, and major blood vessels. Hypertension is recognized as a key risk factor for cerebrovascular diseases, including stroke and transient ischemic attacks. When accompanied by other cardiovascular risk factors, hypertension significantly increases the risk of morbidity and mortality due to cardiovascular disorders (Cushman, 2003). Stroke can strike anyone, particularly those with chronic illnesses like hypertension (Pound et al., 1998). It occurs when blood vessels supplying the

brain rupture, become blocked, or experience impaired circulation. Therefore, individuals with chronic diseases should remain vigilant and take preventive measures to reduce the risk of stroke (Sindhu, 2015).

The World Health Organization (WHO) defines hypertension is characterized by a rise in systolic blood pressure exceeding the normal threshold of 140 mmHg and diastolic blood pressure exceeding 90 mmHg. the prevalence of hypertension people globally was 22% in 2019, while Southeast Asia ranks third with a prevalence of 25%, with Indonesia at 34.11% of hypertension sufferers (Eliyanti & Hanif, 2023). Based on information from Misbach & Ali (2001), the occurrence of stroke shows a very high number. The number of stroke sufferers in Indonesia is 33.2%, namely in the age group of 65-74, in the age group >75 years 43.1% and the prevalence of people with stroke symptoms is 67.0% (Safitri et al., 2020). In 2022, there were 17,813 cases of

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hypertension in men over 15 years old, while in the female population the number reached 21,443 cases (Rahmi et al., 2024). This data reflects the high prevalence of hypertension in the region, which indirectly reflects the overall public health condition. The following year, in 2023, there was a decrease in the number of hypertension cases recorded.

This year, the number of men affected by hypertension decreased to 10,241 cases, while the number of women affected by hypertension decreased to 10,867 cases. Despite the decline, this figure still shows that hypertension remains a health problem in South Aceh (Salbiyah et al., 2024).

An individual's knowledge of hypertension can help in controlling hypertension because with that knowledge, people will be more aware of the need to visit medical facilities regularly and follow treatment. The less information is obtained, the less knowledge there is. However, the more information obtained, the more knowledge (Estrada et al., 2020). The factors that can affect a person to develop hypertension and can be controlled by environmental factors in the form of lifestyle (Hastutik, 2020). Actions that can be taken in hypertensive patients are to change a healthy lifestyle in an effort to prevent stroke. Several stroke prevention strategies can lower the risk of stroke in individuals with hypertension, including blood pressure control, exercise, eating a balanced diet, lowering cholesterol, maintaining a healthy weight, stopping smoking, abstaining from alcohol, screening for and treating heart disease, lowering the risk of diabetes, and learning more about stroke (Hill & Towfighi, 2017).

Based on the results of Mulyani et al. (2021) research, it can be assumed that stroke prevention efforts in *hypertensive* patients are influenced by knowledge, the less knowledge about stroke prevention, the less stroke prevention efforts in hypertensive patients will be. Respondents' ignorance of stroke prevention efforts, so that the understanding to carry out stroke prevention behaviors in hypertensive patients is also poor. Comprehension refers to the ability to accurately describe and interpret a known object or material. A respondent who has mastered a particular subject should be able to explain it, provide relevant examples, and draw conclusions about the object studied. Stroke prevention efforts are very much based on respondents' understanding of the knowledge of stroke itself. Knowledge about stroke prevention can be acquired through health education, as education fundamentally influences the learning process. Generally, the higher a person's education level, the easier it is for them to understand information. For example, in managing hypertension, important dietary considerations include limiting salt intake to less than 2.3 grams of sodium (equivalent to 6 grams of sodium chloride) per day, along

with sufficient calcium, magnesium, and potassium intake, as well as reducing alcohol consumption to lower the risk of high blood pressure that may lead to stroke. Based on this background, the author deems it important to conduct a study on the knowledge level of hypertension patients in relation to stroke prevention efforts, with the research title: "Correlation between Knowledge Level and Stroke Prevention Efforts among Hypertension Patients in the Working Area of Samadua Health Center, South Aceh Regency."

Method

This study employed a descriptive correlational design with a cross-sectional approach, analyzed using the chi-square test. The findings indicated that 53.7% of hypertension patients had a good level of knowledge, while 37.9% demonstrated good stroke prevention efforts. The chi-square test produced a significance value of 0.001, which is less than 0.05, indicating that H_a is accepted and H_o is rejected. Therefore, it can be concluded that there is a significant relationship between knowledge level and stroke prevention efforts in the Samadua Health Center Working Area, South Aceh Regency. The research was conducted from January to July 2025, involving a population of all 50 outpatient hypertension patients in the health center's working area. The sampling technique used was purposive sampling.

The conceptual framework of research is a relationship between one concept and another of the problem to be researched. The research concept framework on the relationship between knowledge of hypertension patients and efforts to prevent stroke incidence is as follows Figure 1.

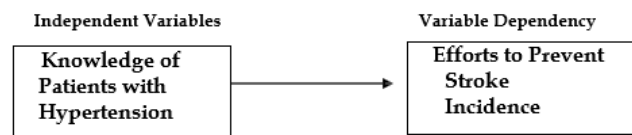


Figure 1. Research Concept Framework

Result and Discussion

Univariate Analysis

Respondent Characteristics

Results of table 1 it can be seen that the majority of respondents aged 56-65 years are 30 people (60%) and the minority age >36-45 years old is 8 people (16%). Based on gender, the majority of women are 33 people (66%) and minorities are male as many as 17 people (34%). Based on education, the majority of people have a high school education as many as 16 people (32%) and a minority with a college education as many as 4 people

(8%). Based on employment status, the majority worked as IRTs as many as 23 people (46%) and the minority worked as civil servants as many as 2 people (4%).

Table 1. Distribution of Frequency of Respondent Characteristics

Characteristics	n	Percentage %
Age	8	16
36-45 years old	12	24
46-55 years old	30	60
56-65 years old		
Gender	17	34
Male Female	33	66
Non- Education	5	10
Elementary School	13	26
Junior High School	12	30
Senior High School	16	32
College	4	8
Work	23	46
IRT	9	18
Civil Servant Farmer	2	04
Self employed	16	32
Sum	50	100

Knowledge of Hypertension Sufferers

According to the table 2, 33 respondents (66%) have strong knowledge, whereas 2 respondents (4%), on the other hand, have less knowledge.

Table 2. Distribution of Frequency of Knowledge of Hypertension Patients

Knowledge of Hypertension Sufferers	n	Percentage %
Less Than	2	04
Enough	15	30
Good	33	66
Sum	50	100

Table 4. The Relationship between Hypertension Patients' Knowledge and Efforts to Prevent Stroke Incidence

Knowledge of Hypertension Sufferers	Not done		Done		Sum	P-value
	n	Percentage %	n	Percentage %		
Less	2	04	0	0	2	100
Pretty Good	5	10	10	20	15	100
	15	30	18	36	33	100
Sum	22	44	28	56	50	100

Discussion

Overview of Respondent Characteristics

Respondent Age

Based on the results of research conducted in the Samadua Health Center Working Area of South Aceh Regency in 2025, it was found that the majority of 56-65 years old were 30 people (60%) and the minority aged <36-45 years old was 8 people (16%). In this case, Amila et al. (2022) said that the older the age, the higher the risk

Efforts to Prevent Stroke Incidence

The results of Table 3 can be seen that the majority of efforts to prevent stroke incidence were made by 28 people (56%) and the minority were not made by 22 people (44%).

Table 3. Dissection of the Frequency of Stroke Prevention Efforts

Efforts to Prevent Stroke Incidence	n	Percentage %
Not done	22	44
Done	28	56
Sum	50	100

Analyzes Bivariate

Table 4 show that from 50 respondents, 2 people (4) showed that 2 people (4) had less knowledge of hypertension who did not make efforts to prevent stroke events, 5 people (10%) had enough knowledge that efforts were not made to prevent stroke events, and 15 people (30%) had knowledge of hypertension patients who did not make efforts to prevent stroke events. Then the knowledge of hypertension patients is lacking in efforts to prevent stroke events, the knowledge of hypertension patients is sufficient to prevent stroke incidence as many as 10 people (20%), and the knowledge of hypertension patients is good in efforts to prevent stroke incidence as many as 18 people (36%).

Based on Chi-Square's *analysis*, it was found that there was a relationship between the knowledge of hypertension sufferers and efforts to prevent stroke incidence in the Samadua Health Center Working Area of South Aceh Regency in 2025 with $p=0.001$ ($p<0.05$).

of stroke, this is related to the elasticity of blood vessels. This is in line with Amanda & Martini (2018) research which states that starting at the age of 40, there is a degeneration process where the walls of blood vessels thicken due to collagen accumulation in the muscle layer so that there is a narrowing and hardening of blood vessels. This research is supported by research conducted by Farisya et al. (2024), that stroke can affect all ages, but it is more commonly found in the elderly

population, after the age of 55 the risk doubles every ten years. The results of his study showed that there was a relationship between age, hypertension, and the incidence of stroke (Pistoia et al., 2016).

Respondent Gender

Based on the results of research conducted in the Samadua Health Center Working Area of South Aceh Regency in 2025, it was found that the majority of women were 33 people (66%) and the minority was male as many as 17 people (34%). This may be due to the fact that women over 40 are more prone to high blood pressure due to the hormones progesterone and estrogen still being present in their bodies. Blood arteries can be shielded from oxidative reactions brought on by food, pollution, and other factors by estrogen and progesterone. According to Nwia et al. (2023), the hormone estrogen influences the kidneys' renin-angiotensin system balance, which maintains constant blood pressure. Women who experience pregnancy, the use of contraceptives (especially hormonal contraceptives) and menopause have a risk of hypertension therefore to minimize it by changing a healthy lifestyle as early as possible. Based on gender, women who go through menopause are more prone to experiencing an increase in blood pressure due to a decrease in the hormone estrogen that protects blood vessels from damage.

Respondent Education

Based on the results of research conducted in the Samadua Health Center Working Area of South Aceh Regency in 2025, it was found that the majority of people with a high school education are 16 people (32%) and the minority is educated in higher education as many as 4 people (8%). In this context, education holds a vital role in shaping people's lives, serving as a reflection of a society's level of sophistication. The higher the education level of a community, the more its civilization will progress in terms of quality of life and lifestyle (Sinuraya et al., 2018).

Education will determine a person's level of knowledge, namely the ability to think. The knowledge possessed by the highly educated community will be wider. Knowledge or cognition is a crucial foundation for shaping an individual's actions. A person's educational factors greatly affect education and anxiety, clients with higher education will be better able to overcome problems, the use of adaptive and maladaptive coping than someone with low education (Alves et al., 2021).

Work

Based on the results of research conducted in the Samadua Health Center Working Area of South Aceh

Regency in 2025, it was found that the majority of IRT workers were 23 people (46%) and the minority was employed by civil servants as many as 2 people (4%). In this case, because the data collection process is carried out mostly to hypertensive patients as housewives, so that more housewives fill out the questionnaire.

The working period is the period of time people have worked for an organization, institution and so on, which is calculated from the first time they work, the longer a person has worked, the workforce will be considered experienced. A person's working period can affect knowledge about the occurrence of stroke, the longer he works, the more experience he gets while carrying out the work period so that the more knowledge a person has about stroke prevention efforts from the experience he has experienced (Purton et al., 2023).

Knowledge of Hypertension Sufferers

Based on the results of research conducted in the Samadua Health Center Working Area of South Aceh Regency in 2025, it was found that the majority of knowledge of hypertension sufferers was both 33 people (60%) and the minority of knowledge was less than 2 people (4%). In this case, respondents' knowledge in understanding stroke prevention is influenced by education, where the majority of respondents are high school respondents (32%). With the development of the age of education, it is increasing. Respondents who are highly educated will be easier to digest the information obtained, compared to respondents who are less educated. The more information received by respondents about stroke prevention, the more likely it is to minimize the occurrence of stroke disease.

Knowledge is closely linked to education as receiving health education generally broadens a person's understanding. However, it is important to note that having a lower level of formal education does not necessarily mean having low knowledge. An individual's knowledge about an object includes both positive and negative aspects, which ultimately shape their attitude toward that object. The more positive aspects a person knows, the more likely they are to develop a positive attitude toward it.

Efforts to Prevent Stroke Incidence

Based on the results of research conducted in the Samadua Health Center Working Area of South Aceh Regency in 2025, it was found that the majority of efforts were made to prevent stroke incidence as many as 28 people (56%) and the minority did not make efforts to prevent stroke incidence as many as 22 people (44%).

The efforts of the respondents in this study were mostly good, in accordance with Allport's opinion quoted from Notoatmodjo & Soekidjo (2012) the

determination of actions is influenced by knowledge, thinking, beliefs and emotions. Knowledge will stimulate a person or individual to think and strive to create balance. Healthy behavior is essentially an individual's (or organism's) response to stimuli related to illness, disease, the healthcare system, food, and the environment (Hasanuddin et al., 2023). Such behavior develops through a specific process that occurs within the interaction between humans and their surroundings.

The Relationship between Hypertension Patients' Knowledge and Stroke Prevention Efforts

Based on the results of the study, it shows that there is a relationship between the knowledge of hypertension sufferers and efforts to prevent stroke incidence in the Samadua Health Center Working Area of South Aceh Regency in 2025 with a value of $p=0.001$. This shows that stroke prevention efforts were carried out by 28 people (56%) in hypertension patients influenced by the level of education of the respondents, the majority of whom are high school, information or health education from health workers or the media about hypertension and stroke prevention received by patients, so that respondents tend to act better in preventing stroke.

Stroke or *Cerebrovascular Accident (CVA)* is a disease that affects anyone with a very sudden occurrence and is one of the main causes of death and neurological disability in Indonesia besides heart disease and cancer (Mboi et al., 2022). Prevention of *stroke* can be done by implementing a healthy lifestyle, including eating foods with balanced nutrition, diligently exercising and avoiding stress and as a preventive measure, people at risk of *stroke* should have regular health checks (Tarwoto & Suryati, 2007). A person's behavior or actions about health are determined, one of which is knowledge. Knowledge is the most dominant factor that plays a role in shaping a person's actions obtained through education, experience, and the environment. The knowledge that a person possesses has an influence on attitude and behavior.

The results of the study were supported by the research of Mulyani et al. (2021) there was a relationship between hypertension patients' knowledge about stroke and stroke prevention behavior in Ngumpakdalem Village, Dander District, Bojonegoro Regency with p value = 0.001. Based on the results of the study, it was found that most of the respondents' knowledge is good so that it will help respondents in preventing stroke so that the risk of getting a stroke will decrease. This is caused by most of the respondents have a high school education level, so most of the respondents are able to prevent the risk of stroke due to the good insight they have in prevention.

Conclusion

The respondents' characteristics showed that the majority of participants were aged 56-65 years (44.8%), with women representing 66% of the sample. Most respondents had a high school education (32%), and a significant proportion were housewives (46%). In terms of knowledge, the majority of hypertensive patients had good knowledge regarding stroke prevention (60%). Additionally, more than half of the respondents (56%) had made efforts to prevent stroke incidence. Furthermore, a significant relationship was found between the knowledge of hypertension patients and their efforts to prevent stroke in the Samadua Health Center work area of South Aceh Regency in 2025, with a p -value of 0.001.

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Author Contributions

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Conflicts of Interest

All authors declare no conflict interest in this research.

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