

## RELATIONSHIP BETWEEN DAILY LIVING ACTIVITY AND SELF DEPENDENCY IN NON-HEMORAGIC STROKE PATIENTS IN THE STROKE UNIT

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### ABSTRACT

Stroke is a chronic disease that affects the quality of life and ability of daily living activities (ADL) of patients, especially in ischemic stroke patients. In Indonesia, stroke is the third largest cause of disability and death, 25.8 percent of sufferers experience total or partial paralysis. This causes sufferers to have difficulty in carrying out daily activities or Activity of daily living (ADL) and independence of self-perception (Self dependency). The purpose of this study was to determine the relationship between Activity Daily Living (ADL) and Self Dependency in non-hemorrhagic stroke patients. This study was conducted in December 2024 in the stroke unit of RSUD dr. Loekmono Hadi Kudus using a descriptive analytical design with a cross-sectional approach. The population in this study was 250 with a sample of 106 patients selected using a purposive sampling technique. Data were collected through a questionnaire that included a measurement instrument for the level of dependence in the form of a questionnaire and a measuring instrument for calculating ADL (Barthel index). Data analysis using the Gamma Correlation test. The results of the analysis using the Gamma Correlation test statistical test with the SPSS program obtained a p-value of  $0.001 < (\alpha = 0.05)$  with a correlation coefficient (0.963) meaning that there is a very strong relationship between daily living activities and independence in non-hemorrhagic stroke patients in the Stroke Unit of Dr. Loekmono Hadi Kudus Hospital. Independence in cases of non-hemorrhagic stroke patients in the Stroke Unit of Dr. Loekmono Hadi Kudus Hospital mostly experienced moderate dependence while patient independence was in the category of requiring severe dependence assistance.

**Keywords:** Stroke Iskemic; Daily Living Activities; Self Dependency

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### Article History:

Received: 05 February 2025

Revised: 05 July 2025

Accepted: 11 July 2025

## INTRODUCTION

Stroke is a disease caused by blockage of blood vessels or rupture of blood vessels that supply blood to the human brain. There are several things that can affect neurological deficits that will interfere with daily life (Lestari et al., 2020). Stroke is divided into two types based on its condition, namely ischemic stroke is usually called non-hemorrhagic stroke caused by lack of blood and oxygen supply to the brain while hemorrhagic stroke is caused by bleeding or leakage of blood vessels, about 87% of strokes that occur are ischemic infarction strokes (Puri et al., 2021).

According to WHO (World Health Organization 2023), as many as 29.4 million people in the world have been affected by stroke in 2018. Of that number, 10.3 million people have died. It is estimated that the number of ischemic strokes occurs 85% of the number of strokes (Huang et al., 2023). High blood pressure or hypertension contributes 17.5 million cases of stroke in the world. In Indonesia itself, it is a country with the largest number of stroke sufferers in Asia. It is currently estimated that 1 in 6 people worldwide will experience a stroke in their lifetime (Utama & Nainggolan, 2022).

In Indonesia, stroke is the third leading cause of disability and death after heart disease and cancer. The prevalence of stroke reaches 9.1 per 1000 population. In this case, 60.7 percent of deaths are caused by non-hemorrhagic stroke. As many as 25.8 percent of sufferers experience total or partial paralysis. Only 15 percent can recover from stroke or disability (Nurhasnah et al., 2023). Meanwhile, in Kudus Regency, the prevalence of new cases of non-hemorrhagic stroke in 2020 was 618 cases. Meanwhile, the incidence of hemorrhagic and non-hemorrhagic stroke in Kudus Regency according to data from the Kudus Regency Health Office in 2023 experienced an increase in stroke cases in Kudus, which could be influenced by the lack of public awareness about stroke prevention, such as managing hypertension, healthy eating patterns, and physical activity. The role of the family is very important to help stroke patients recover optimally. A total of 2,145 cases were counted (Prasetyo, 2021).

Stroke can cause effects that affect individual performance, such as decreased self-confidence, decreased productivity, or loss of enthusiasm for carrying out other activities. The impacts caused after a stroke are paralysis and disability, communication disorders, emotional disorders, rest disorders, depression, pain, and many more. This causes sufferers to have difficulty in carrying out daily activities or Activities of daily living (ADL) (Fauziah & Dety Mulyanti, 2023).

Self-dependency or perception of the level of dependency is the individual's ability to regulate and control daily activities without the help of others. In ischemic stroke patients, the level of self-dependency can vary greatly depending on the severity of the stroke, the location of the lesion in the brain, and other factors such as age, comorbidities, and social support (Nurhasnah et al., 2023).

Daily activities Activity of daily living (ADL) is a form of measuring a person's ability to carry out daily activities independently, including eating, dressing, toileting, mobilizing and bathing (E. Wurzinger et al., 2021). Daily activities aim to meet the needs of individuals in families and communities. Fulfillment of daily needs Activity of daily living (ADL). Which explains the results of the study that there is a relationship between the level of dependence in meeting daily needs and the level of depression in a patient. The influencing factor is that patients feel inferior because their level of independence has decreased, causing patients to feel dependent in carrying out activities that used to be independent, now they have to depend on others (Yunifananda & Kusumaningsih, 2020).

Someone who has a good/adaptive coping mechanism shows positive expectations. For sufferers, a good coping mechanism will show expectations for improving health conditions and being able to adapt to changes both physically, psychologically, environmentally and socially as a result of the disease they suffer from (Cabral et al., 2024). Conversely, patients who use maladaptive coping mechanisms are more likely to experience moderate and severe anxiety. This anxiety is related to changes due to the condition of the disease, so that the anxiety response has an impact on psychosomatic disorders that worsen the disease suffered (Idha Nurfallah, 2021). Positive self-perception tends to increase autonomy and health outcomes, while negative perceptions strengthen dependence and the risk of decreased well-being. In addition, there is a positive relationship between mental health,

such as prosociality and autonomy, with independence in ADL, indicating the importance of interventions to support patient psychological well-being (Mather et al., 2024).

This is supported by research by Hansell & Chapman in 2022 which stated that dependence on activities including personal hygiene activities, bathing alone and dressing can reduce the self-esteem of stroke sufferers. As a result of dependence or assistance from others in carrying out personal hygiene that is lacking and the inability to bathe alone causes the body, hair, teeth to look dirty, skin that is scaly and smelly, this causes a bad appearance and can cause feelings of shame towards oneself (Laili & Taukhid, 2023).

This study has differences with previous studies, namely examining the level of dependency or more focused on examining the level of dependency of stroke patient care to improve their quality of life. This study also emphasizes the focus on non-hemorrhagic stroke patients only. Research conducted by (Halimah et al., 2023) emphasizes more on all stroke patients including hemorrhagic and ischemic (non-hemorrhagic). This study emphasizes self-management in stroke patients including psychological and family support (Hidayat et al., 2020).

This study has broad benefits for various professions in the health sector. The results of the study can provide insight into the importance of Activity Daily Living (ADL) and self-dependency in the rehabilitation of non-hemorrhagic stroke patients in the field of nursing can add to the development of interventions, especially in medical surgical nursing, so that it becomes a reference for compiling effective intervention programs. For doctors, this information can help in determining treatment plans and case management (Grøan et al., 2021).

For nurses, these findings are useful in designing nursing strategies to improve patient independence. Physiotherapists can also use these results to design physical therapy that focuses on improving daily functional abilities (Puri et al., 2021). In addition, for nutritionists, this study can be a guide in ensuring nutritional intake supports patient recovery, and for psychologists or counselors, these findings help deal with the emotional impact of dependence and decreased self-esteem. Thus, this study can increase interprofessional synergy in caring for stroke patients (Zachrison et al., 2022).

In stroke patients, the function of ADL affects rehabilitation and psychological stress. Stroke These daily activities can be grouped into instrumental activities (eg, shopping, paying bills) and personal daily activities (referred to as ADL, eg, eating, drinking, dressing, toileting) (Laili & Taukhid, 2023). Self-dependency in ADL is a common consequence after a stroke attack can cause sufferers to experience physical dysfunction so that there is a disruption in daily activities (ADL) to be able to live independently (Sejati et al., 2023).

Based on the description of the phenomenon above, the researcher wants to conduct an in-depth study on the relationship between Activity Daily Living (ADL) and self-dependency in non-hemorrhagic stroke patients in the stroke unit of DR. Loekmono Hadi Kudus Hospital.

## **METHOD**

### ***Study Design***

This type of research is quantitative research. This research uses a descriptive analytical design with a cross-sectional approach.

### ***Settings***

This research was conducted at Dr. Loekmono Hadi Hospital, Kudus, for data collection was taken in the Stroke Unit of Dr. Loekmono Hadi Hospital, Kudus in January 2025.

### **Research Subject**

Population of 250 non-hemorrhagic stroke patients per year. The calculation of the number of samples in this study used the Isaac Michael formula, with a purposive sampling technique. The inclusion criteria for this study are:

1. Respondents were non-hemorrhagic stroke patients
2. Respondents are patients with composmentis awareness and stable patient hemodynamics.
3. Respondents were patients who had experienced their first stroke attack.
4. Patient age above 17 years
5. Respondents who are undergoing inpatient treatment

From the calculation results, 106 research sample respondents were obtained.

### **Instruments**

The research instruments are: Questionnaires (question lists), observation forms, other forms related to the data approach addressed to respondents to be answered. The research instruments in this study include:

1. Questionnaire A  
This questionnaire contains demographic data on patients which is used to determine the characteristics of respondents consisting of respondent code, age, gender, education, and stroke attack number.
2. Questionnaire B  
This questionnaire contains questions. The WHOQOL-BREF questionnaire can be used to measure quality of life in post-stroke patients by considering four main domains: physical, psychological, social, and environmental.
3. Questionnaire C  
This questionnaire contains the Barthel index which consists of 10 question items to assess the level of daily activities that respondents can do. The Barthel index question items consist of eating, bathing, dressing, controlling bowel movements, controlling urination, toileting, mobilization (moving from bed to chair and vice versa), walking on a flat surface, and going up and down stairs.

### **Intervention**

Data collection in this study for the self-dependency variable used the WHO Quality Of Life - BREF (WHOQOL-BREF) questionnaire developed by Martini in 2022 which has been modified by the researcher without changing the meaning and purpose of the questions developed by Martini in 2022 with 14 questions, each question is answered using a Likert scale from 1 to 5, with 1 indicating the worst condition and 5 indicating the best condition.

In the Activity Daily Living (ADL) variable, the Barthel index questionnaire is used, consisting of 10 question items to assess the level of daily activity that respondents can do. Observation or ask patients directly, conduct direct observations or interviews with patients regarding their abilities in each activity.

### **Data Analysis**

Univariate analysis was conducted to determine the description of the characteristics of each variable that includes daily living activities related to self-dependency. In this study, the frequency distribution of Daily Living Activities will be presented in the form of frequencies based on the level of patient independence. The self-dependency variable will be presented in the form of frequencies based on 4 Domains, namely. The data are processed in the form of percentages and frequency distribution tables using a computer. So that a picture of daily living activities with the level of dependence of stroke patients will be obtained.

Bivariate analysis of correlation test, the purpose of this analysis is to determine the relationship between Activity Daily Living related to self-dependency. The statistical test in this study will use the Gamma Correlation test.

### Ethical Considerations

The researcher requested a cover letter from the academic section of the LPPM Nursing Study Program to apply for permission related to the implementation of the research and then requested a cover letter for the research from the BAUAK section addressed to the Director of dr. Loekmono Hadi Kudus Hospital before the research was conducted. The ethical approval letter was issued by the head of the research ethics committee of dr. Loekmono Hadi Kudus Hospital with the number: 04/KEPK/RSLH/1/2025. This research was conducted based on several ethical principles in nursing research, namely:

1. **Autonomy**  
The researcher explains the purpose and objectives of the research to be conducted and explains the consent form. If the respondent is willing to be a respondent, then the respondent signs the consent form. Conversely, if the respondent is not willing to be a respondent, then the researcher will respect the rights of the participant by not coercing them.
2. **Anonymity**  
Anonymity is an ethical issue in research where the respondent's name is not included in the measuring instrument, but only includes a code on the sheet. Researchers ask respondents to use initials instead of their full names.
3. **Confidentiality**  
Confidentiality is an ethic in research where researchers will guarantee the confidentiality of all research information, both personal information and other issues.
- Non Maleficence
4. Respondents in the study were spared from unfortunate accidents. Everything that was done did not harm the respondents.

### RESULTS

Based on the results of the research that has been conducted on the Relationship between Activity Daily Living (ADL) and Self Dependency of non-hemorrhagic stroke patients in the Stroke Unit of Dr. Loekmono Hadi Hospital, Kudus in 2025, the characteristics of the respondents can be described as follows:

**Table 1.** Respondent Characteristics Based on Age (n= 106)

Age	Frequency	Percentage (%)
>80 Late Elderly	2	1.9
60-79 Seniors	84	79.2
19-59 Adults	20	18.9
Total	106	100.0

Source: 2025 data processing

Based on table 1 above, it can be concluded that the average age of the respondents is 60-79 years with the elderly category amounting to 84 respondents with a percentage of (79.2%).

**Table 2.** Respondent Characteristics Based on Gender (n=106)

Gender	Frequency	Percentage (%)
Man	62	58.5
Woman	44	41.5
Total	106	100.0

Source: 2025 data processing

Based on table 2 above, it can be concluded that the majority of respondents' gender is male, amounting to 62 respondents with a percentage of (58.5%).

**Table 3.** Respondent Characteristics Based on Respondent Education (n=106)

Education	Frequency	Percentage (%)
Elementary School	36	34.0
Junior High School	46	43.4
Senior High School	20	18.9
College	4	3.8
Total	106	100.0

Source: Data Processing 2025

Based on table 3 above, it can be concluded that the highest percentage of respondents' education is junior high school, with 46 respondents with a presentation of 43.4% and the lowest percentage is college, with 4 respondents with a presentation of 3.8%.

**Table 4.** Respondent Characteristics Based on Occupation (n=106)

Work	Frequency	Percentage (%)
Civil Servant	4	3.8
Employee/Laborer	11	10.4
Self-employed	11	10.4
Farmer	80	75.5
Total	106	100.0

Source: Data Processing 2025

Based on table 4 above, it can be concluded that the highest percentage of respondents' jobs are farmers, amounting to 80 respondents with a percentage of 75.5% and the lowest percentage are civil servants, amounting to 4 with a percentage of 3.8%.

**Table 5.** Respondent Characteristics Based on Stroke Attacks (n=106)

Stroke attack to	Frequency	Percentage (%)
First	51	48.1
Second	55	51.9
Total	106	100.0

Source: Data Processing 2025

Based on table 5 above, it can be concluded that the highest percentage of stroke attacks is the second attack, amounting to 55 cases with a percentage of 51.9% and the lowest percentage is the first attack, amounting to 51 cases with a percentage of 48.1%.

**Table 6.** Based on the Self Dependency Questionnaire

Self-Dependency Questionnaire	Frequency	Percentage (%)
Tall	8	7.5
Currently	94	88.7
Low	4	3.8
Total	106	100.0

Source: 2025 data processing

Based on table 6 above, it can be concluded that the majority of patients' self-dependency is moderate with a total of 94 respondents with a percentage of 88.7%.

**Table 7.** Based on the Activity Daily Living Questionnaire

Barthel index questionnaire	Frequency	Percentage (%)
Total Dependence	4	3.8
Heavy Dependence	93	87.7

Moderate Dependence	9	8.5
Total	106	100.0

Source: Data Processing 2025

Based on Table 7 above, it can be concluded that the majority of patient independence levels are severe dependency with a total of 93 respondents with a percentage of 87.7%.

Bivariate analysis in this study aims to analyze the relationship between Daily Living Activities and self-dependency in non-hemorrhagic stroke patients in the Stroke Unit of Dr. Loekmono Hadi Kudus Hospital. To find out the hypothesis, a hypothesis test is needed through a computerized program. After the hypothesis test, the following data is found:

**Table 8.** Relationship between Daily Living Activities and Self-Dependency in Non-Hemorrhagic Stroke Patients in the Stroke Unit of Dr. Loekmono Hadi Hospital, Kudus  
Gamma Corelation Test

	Value	Assympt.Std Error	Approx T	Approx.sign
Ordinal by ordinal Gamma	,963	,028	3,267	,001
N of valid Cases	106			

Source: Data Processing 2025

**Tabel 9.** Contingency Table of Bullying Experience and Mental Emotional Health  
Self-Dependency Kategori

Variable		High = 70	Moderate =40-60	Low =>40	Total
ADL Kategori	Total Dependence	4	0	0	4
	Heavy Dependence	0	89	4	93
	Moderate Dependence	0	4	5	9
	Total	4	93	9	106

Source: Data Processing 2025

Table 8 Gamma Correlation test results obtained a p value of  $0.001 < (\alpha = 0.05)$  and a correlation relationship of 0.963 which can be concluded that there is a very strong relationship between daily life activities and independence in non-hemorrhagic stroke patients in the Stroke Unit Room of Dr. Loekmono Hadi Kudus Hospital with a p value of  $0.000 < (\alpha = 0.05)$ .

Table 9 contingency data is obtained from patients in the moderate self-dependence category for daily activity needs who have a heavy dependency of 89, dominating the other variables.

## DISCUSSION

Based on the results of the study, it was shown that patients who had more strokes were male patients, amounting to 62 respondents (68.5%). This is due to lifestyle factors that affect cardiovascular function such as smoking. Smoking can cause hypertension due to the chemicals contained in tobacco which can damage the inner lining of the artery walls, making the arteries more susceptible to plaque buildup (atherosclerosis) (Fauziah & Dety Mulyanti, 2023). This is also supported by a study conducted by Nugaraha at the Arifin Achmad Hospital in Riau which showed that stroke attacks occur more often in men than women, namely 81.7% / 100,000 and women 71.8% per 100,000. This condition is related to lifestyle and is related to other risk factors such as smoking, dyslipidemia, alcohol consumption (Zachrisson et al., 2022).

Based on the Education Level, the results of this study show that the majority of people affected by stroke are educated to have graduated from junior high school, amounting to 46

respondents (43.4%). The study shows that patients with low education are more susceptible to functional dependence after stroke, with a ratio of 3.7 times higher than patients with high education. In addition, low education levels are also associated with higher mortality rates within one year after stroke, especially in patients with severe stroke (Hunaifi et al., 2023). This study is supported by a study in China which also found that low education increases the risk of death, recurrent stroke, and cardiovascular events, with patients without formal education having almost three times the risk of death than those with high education (Gensicke et al., 2022).

Based on the type of work, the majority of farm laborers were 80 respondents (75.5%). Work is one of the risk factors that indirectly affects the incidence of stroke according to the results of research observations. This occurs because the impact of working for long hours results in prolonged stress. This study is supported by research conducted by Pari et al. (2019) Farmers' work often involves heavy physical activity, which increases the risk of blood pressure disorders. Constant exposure to physical stress without adequate rest patterns can trigger hypertension, one of the main causes of stroke. In addition, habits such as smoking and high-salt diets that are often found in groups also increase the risk of hypertension and stroke (Yang et al., 2023). In addition, farmers are often exposed to pesticides, which can cause oxidative stress in the body and damage blood vessels. This condition increases the risk of cardiovascular disease, including stroke (Yunifananda & Kusumaningsih, 2020).

Based on the results of the study that has been carried out, the majority of patients in the Stroke Unit Room at Dr. Loekmono Hadi Kudus Hospital experienced a second stroke attack, as many as 54 respondents (50.9%). Supported by the results of patient interviews, the average patient had a history of diseases such as heart disease, diabetes and kidney failure. Patients who have experienced a first stroke attack must undergo more detailed intervention measures so that subsequent attacks do not occur, therefore intensive care for patients in the stroke unit room at Loekmono Hadi Kudus Hospital is mostly a second attack because patients are given more intensive care if they have experienced repeated stroke attacks. This study is in line with research conducted by Karunia Stroke, this second attack is a factor that also influences independence. This second stroke attack has a more severe impact. Most people who have this second stroke attack, their limbs are difficult to move. In this field condition, this non-independent person experiences a second stroke attack (Suwardi, 2021).

Based on the univariate analysis of the research result variables in the Stroke Unit Room of Dr. Loekmono Hadi Kudus Hospital in non-hemorrhagic stroke patients experienced a high level of self-perception dependency of 8 respondents with a percentage of (7.5%). With the majority of moderate perception dependency of 94 respondents with a percentage of (88.7%). and low dependency of 4 respondents with a percentage of (3.8%). The results of the study showed that most respondents perceived themselves as questions concerning the environmental domain with a percentage of (85.5%). This is influenced by the age of the patient and the history of the first stroke treatment balanced with the patient's mental state which can affect the Quality of Life Score of stroke patients. With this moderate level of self-perception dependency, it will affect the Quality of Life Score of stroke patients (Chiu et al., 2021). This is supported by research that is in line with the Theory of the level of dependency or self-dependency is defined as the ability of individuals to regulate, direct and manage themselves in various aspects of life. This involves belief in one's own abilities. In addition, someone who faces every life pressure and prolonged stress can result in increased blood pressure (Nurhasnah et al., 2023). With a focus on self-reliance, Orem's theory emphasizes the importance of an individual's ability to care for themselves and how nurses can support and facilitate this ability to improve the health and well-being of patients (Utama & Nainggolan, 2022).

Based on the results of research conducted in the Stroke Unit Room of Dr. Loekmono Hadi Kudus Hospital in non-hemorrhagic stroke patients, it was found that measuring the level of



independence using the Barthel Index instrument obtained Total Dependence results of 8 respondents with a percentage (7.5%). Severe Dependence of 93 Respondents with a percentage (87.7%), Moderate Dependence of 9 respondents with a percentage (3.8%). This is influenced because respondents experience a high level of dependence in eating activities which means they depend a lot on other people with a percentage (96.2%). This is supported by research Stroke often causes depression and anxiety, which reduces the patient's motivation to carry out activities independently. This affects the low Barthel Index score (Laili & Taukhid, 2023). Another thing that causes a low Barthel index score or severe dependency includes cognitive disorders in stroke patients because stroke patients often experience neurological attacks that result in one of the limbs being unusable, resulting in the need for help from others and not being able to do it independently. This is in line with research (Sejati et al., 2023).

Based on the research results that have been obtained, the  $p\text{-value} = 0.001 < \alpha = (0.05)$  shows that patients with a Barthel Index score  $<75$  have a much higher level of dependency compared to patients with higher scores. With a coefficient correlation value ( $r$ ) of 0.765. This finding highlights the importance of the Barthel Index score as a predictor of ADL dependency (Widhayanti et al., 2024). This study is also in line with research conducted by (Ryu et al., 2022). The  $p\text{-value} = 0.001 < \alpha = (0.05)$  found a significant relationship between low Barthel Index scores and severe dependency levels in subacute stroke patients. The lower the Barthel Index score, the greater the patient's dependence on assistance for ADL. This study is also supported by the results of research that has been conducted, most respondents have good post-Stroke Self Management (82.7%). Meanwhile, the level of independence of Activity Daily Living (ADL) was almost all respondents (88.5%). The  $p\text{-value}$  was obtained  $= 0.000 < \alpha = (0.05)$  which means that there is a relationship between Self Management and the level of independence of Activity Daily Living (ADL) with a coefficient correlation value ( $r$ ) of 0.630 including a strong level relationship. That the better the self-perception of post-Stroke sufferers, the more independent post-Stroke sufferers are at the level of independence in daily activities (Yunifananda & Kusumaningsih, 2020).

## CONCLUSION

Based on the research conducted by the researcher entitled The Relationship between Daily Living Activities and Self-Dependence in Non-Hemorrhagic Stroke Patients in the Stroke Unit of Dr. Loekmono Hadi Kudus Hospital, it can be concluded that there is a strong correlation between daily living activities and independence in non-hemorrhagic stroke patients in the Stroke Unit Room of Dr. Loekmono Hadi Kudus Hospital, so a strategy is needed so that stroke patients can adapt to their health status in order to carry out daily activities well. Further research is needed to further analyze more specific variables from the daily activities of stroke patients.

## SUGGESTIONS

The results of this study are expected to increase knowledge and insight into non-hemorrhagic stroke, especially for further researchers who will continue this research, it is hoped that they will continue research on patient self-management or the relationship between anxiety factors and stroke sufferers. The results of this study can also provide information to patients and their families in dealing with stroke patients in the future in paying attention to physical function by providing opportunities for patients to carry out their activities independently.

## ACKNOWLEDGEMENT

Thank you to the research supervisor who has provided guidance so that the writing of this scientific paper becomes better, not to forget the support of all friends so that the author can complete the writing of this scientific paper, and special support from the family who is extraordinary so that the author is enthusiastic and can complete the writing of this scientific paper.

## DECLARATION OF INTEREST

The author states that this scientific work has no other intention than to develop knowledge, let alone cause a conflict of interest, and its good intention is to contribute ideas, especially to stroke cases, the prevalence of which is currently increasing rapidly.

## FUNDING

This research uses the researcher's own funds and does not involve other parties or scholarships from anywhere and is purely personal funding.

## AUTHOR CONTRIBUTION

All authors have sufficiently contributed to all research stages.

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