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Associated factors of non-recurrence stroke among stroke patients in Thailand

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ABSTRACT

Stroke is a silent killer. Preventing the recurrence of strokes is therefore essential. This study investigated i) the level of health literacy to prevent the recurrence of stroke, ii) factors associated with not having a stroke, and iii) Associations between health literacy and recurrence of stroke. This cross-sectional analytical research was conducted with 240 samples. Multiple logistic regression was performed to describe the factors and associations recurrence stroke. The results showed that the majority of the samples had a problematic level of health literacy to prevent recurrence stroke (52.08%), and 35.84% had recurrence stroke. Factor: Not drinking alcohol was 6.11 times more than drinking (adj. OR=6.11, 95% CI: 4.88 to 10.04). There was no recurrence of stroke with statistical significance at the 0.05 level. High understanding skill 4.43 times (adj. OR=4.43, 95% CI=3.44 to 5.58), and high apply skill 3.67 times (adj. OR=3.67, 95% CI=2.44 to 8.18) than low and moderate levels. Statistically significant at the 0.05 level. Per findings, health literacy should be actively promoted to prevent stroke recurrence.

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1. INTRODUCTION

Stroke is a silent killer and is the leading cause of disability and the second leading cause of death worldwide. From 1990 to 2019, the rate of stroke increased by 70%, deaths attributable to stroke increased by 43%, the prevalence of stroke increased by 102%, and disability-adjusted life years (DALY) increased by 143%. The 2022 Global Stroke Fact Sheet reveals that the lifetime risk of developing a stroke has increased by 50% over the past 17 years, and 1 in 4 people is estimated to have a stroke in their lifetime. The most striking feature is that the bulk of the global stroke burden (86% of deaths due to stroke and 89% of DALYs) occurs in lower and lower-middle-income countries. This disproportionate burden is borne by low- and middle-income countries, creating unprecedented problems for lower-income families. Stroke Epidemiology in Thailand Report of the Division of Noncommunicable Diseases the Ministry of Public Health in 2021 [1] found the rate of stroke per 100,000 population in 2017–2019 to be 467.46, 506.20, and 542.54, respectively, and the death rate from stroke per 100,000 population was 47.81, 47.15, and 52.97, respectively. In the Northeast, the stroke rate per 100,000 population in 2017–2019 was 436.04, 481.44, and 524.89,

respectively, and the death rate from stroke per 100,000 population was 39.06, 39.94, and 45.32, respectively. [2]. From the data, it is found that the morbidity and mortality rates at the national level are high and increasing every year, especially in the Northeastern region, which in the past had lower morbidity and mortality rates from stroke than other regions. However, at present, it is found that the morbidity and death rates are high and increasing every year. Stroke is a leading cause of death and disability in Thailand. It is estimated that there are more than 250,000 new cases of stroke each year. Stroke is responsible for 50,000 deaths per year. Alarming statistics from Thailand's Ministry of Public Health rank stroke as the first most common cause of death for both women and men [3], [4]. Stroke related mortality is unfortunate, but for the survivors, stroke places a significant burden of disability on patients and their families. It is considered to have the highest disease burden in Thailand. It is measured in disability-adjusted life years (DALYs) in females and third in males [3], [5].

Ischemic stroke There are risk factors, including: age, anxiety, depression, and high stress levels, diabetes mellitus, hypertension, obesity hyperlipidemia, sleep apnea, and hyperlipidemia. Lifestyle changes This includes quitting smoking. Reduce alcohol use and increase exercise. It is also important in managing patients with a history of stroke disease or transient ischemic attack [6]–[9].

A recurrent stroke is when a person has another stroke after the first stroke. Recurrence can have a significant impact on a person's quality of life. Various studies it was found that the recurrence rate of strokes was different. Having had one stroke is a risk factor for having another stroke. In general, the cause of a recurrent stroke is the same as the cause of the first stroke. Two types of strokes can occur an ischemic stroke and a hemorrhagic stroke [10]. Standard treatment for acute ischemic stroke is the use of thrombolysis within 4.5 hours of symptom onset [11]. Stroke treatment has a treatment approach focused primarily on restoring blood flow to the brain and healing the neurological damage caused by the stroke [12]. A review of health literacy literature found that health literacy is the ability to obtain, access, and a review of health literacy literature found that health literacy is the ability to obtain, access, understand, appraise, and apply essential health information for promoting better health may be a major obstacle to the lifestyle of stroke patients, reducing their risk of stroke [13]. Patients with insufficient health literacy have been shown to have less understanding of their medical conditions. Therefore, low literacy is associated with problems preventing disease risk. Delayed diagnosis low self-care skills Lack of understanding of medical advice and following physician advice. For this reason, the U.S. Surgeon General has identified health literacy as a national priority that should be developed [14], [15]. Therefore, the researcher would like to study the factors associated with health literacy and the recurrence of stroke among stroke patients in Thailand to create health promotion guidelines for preventing stroke recurrence.

2. METHOD

The population in this study of stroke patients in northeastern, Thailand, by simple random sampling. The Northeastern region consists of four regions. Representatives from 4 regions consisting of 4 provinces were randomly selected, and the provincial representatives were randomly selected as 4 sub-district health promotion hospitals. Then the sample was selected according to the inclusion criteria.

The sample size calculation is based on a formula that is simplified for multiple logistic regression in the analysis [16]. The formula is adjusted according to the influence of the relationship between independent variables with the variance inflation factor (VIF). Research tools using sample questionnaires. According to the estimation scale, applied research tools have four levels: insufficient, problematic, sufficient and excellent [17]. The reliability of the questionnaire was validated through a questionnaire try-out. Then analyze reliability. Cronbach's coefficient method was used. The Cronbach's alpha coefficient of the health literacy for recurrence stroke scale was 0.80. Research ethics This research protocol has been reviewed by the Sirindhorn College of Public Health Institutional Review Board (SCPHKKIRB). The ethical number was HE652085 granted on December 26th, 2022.

3. RESULTS AND DISCUSSION

3.1. General information

The results of the study consisted of 240 samples, mostly female, 70.09%, age ≥ 60 years 65.55%, body mass index overweight 60%, dual family status 66.44%, education level secondary school81.01%, disease diabetes mellitus 27.13%, disease High blood pressure 50.60%, duration of stroke within 3–5 years 62%, non-smoking 94.96%, Do not drink alcoholic beverages 95.84%, do not use nonsteroidal anti-inflammatory drugs 85.66%, do not use herbal medicine 65.89%, come to see the doctor as per appointment 99%, and take medicine as prescribed by the doctor 95.01%. and 35.84% had recurrent stoke.

3.2. Health literacy level

Access skill was found to have scores at the most problematic level; 60 percent had an average score of 14.18 (SD=3.22); understand skill had scores at the low level; 54.20 percent had an average score of 7.31 (SD=1.99). Appraisal skill was found to have a score at the most problematic level, 48.34 percent, with an average score of 15.55 (SD=2.88). and apply skill, found to have a score at the most problematic level, 47.92 percent, with an average score of 32.94 (SD=4.65). as detailed in Table 1.

Table 1. Health literacy level (n=240)

Health literacy levels	Number	Percentage
1. Access skill (Max=25)		
Insufficient	26	10.83
Problematic	144	60
Sufficient	56	23.33
Excellent	14	5.84
Mean (Standard deviation)	(14.18)± 3.22	
Median (Min: Max)	15 (9: 24)	
2. Understand skill (Max=10)		
Low	130	54.20
High	110	45.80
Mean (Standard deviation)	(7.31)± 1.99	
Median (Min: Max)	7 (3: 10)	
3. Appraise skill (Max=25)		
Insufficient	16	6.66
Problematic	116	48.34
Sufficient	102	42.50
Excellent	6	2.5
Mean (Standard Deviation)	(15.55)± 2.88	
Median (Min: Max)	15 (11: 25)	
4. Apply skill (Max=50)		
Insufficient	16	6.66
Problematic	115	47.92
Sufficient	97	40.42
Excellent	12	5.00
Mean (Standard deviation)	(32.94)± 4.65	
Median (Min: Max)	32 (19: 47)	

3.3. Analysis of factors and relationships between health literacy and recurrence stroke.

From the analysis of overall stroke patients, it was found that, Factor: Not drinking alcohol was 6.11 times more than drinking (adj. OR=6.11, 95% CI: 4.88 to 10.04). There was no recurrence of stroke with statistical significance at the 0.05 level. High understands skill 4.43 times (adj. OR=4.43, 95% CI =3.44 to 5.58), and high apply skill 3.67 times (adj. OR=3.67, 95% CI=2.44 to 8.13) than low and moderate levels. Statistically significant at the 0.05 level. (Low–moderate=insufficient, problematic, High=sufficient, excellent) as detailed in Table 2.

Table 2. The GLMM logistic regression analysis (n=240)

Category	Numbers	% non recurrence of stroke	Crude OR	Adjusted OR	95%CI	p-value
1. Alcoholic						
Drink	10	4.16	1	1	1	< 0.001
Not drink	230	95.84	7.10	6.11	4.88 to 10.04	
2. Understand skill						
Low – moderate	130	10.58	1	1	1	< 0.001
High	110	44.40	5.59	4.43	3.44 to 5.58	
3. Apply skill						
Low – moderate	131	16.00	1	1	11	< 0.001
High	109	52.77	4.88	3.67	2.44 to 8.18	

p≤.05*

3.4. Discussion

Most of the sample group had health literacy to prevent recurrence at the problematic level (51.28%), consistent with research that found that stroke disease has low health literacy levels [18], [19] This can be explained as: Health literacy is related to understanding. Furthermore, I have access to accurate health information to take appropriate action and follow treatment recommendations. Patients with inadequate health literacy reported a poorer understanding of their medical conditions and poor self-management skills. Lack of understanding of medical advice and low adherence to treatment recommendations influence health

literacy levels, influenced by various determinants. The most frequently mentioned factors were education, age, and socioeconomic factors [20]–[23]. This may be due to the lack of development in health literacy, limitations in accessing reliable health information, and limitations in having modern communication equipment with a comprehensive internet signal network different from research. It was found that stroke patients exhibited appropriate stroke knowledge and performed moderate to high levels of health-promoting behaviors [24]. It was found to be different from studies that found that most of the sample had health literacy at a sufficient level because health literacy is an important factor to consider in post-stroke rehabilitation [25]. Because health literacy has already been developed.

Factors for not drinking alcohol: 6.11 times more than drinking, which is consistent with research that found drinking alcohol is a factor affecting recurrence rates because drinking alcohol will result in higher blood pressure and drinking large amounts of alcohol will weaken the blood and make it difficult to stop. When the rupture of a blood vessel in the brain is combined with high blood pressure, it increases brain tissue damage and increases brain tissue damage. It will have the effect of not stimulating the recurrence of the disease and promoting the recovery of stroke [26], [27], which was found to be consistent with research associated to a lesser extent with health and behavioral factors such as high alcohol consumption [28].

High-level understanding skills are more than low-level and moderate 4.43 times, because a high level of understanding will result in stroke patients having an understanding of the guidelines for preventing recurrence stroke and having the intellectual ability to think analytically, reflect, and check reliability with cause and effect. To put into practice to prevent recurrence strokes and high apply skill is 3.67 times greater than low and moderate because high-apply skills will result in stroke patients having the ability to make decisions. Agreeing to achieve an intention or choice for which one can be responsible leads to decision-making and selection to prevent a recurrence of stroke, consistent with research as: Stroke patients with insufficient health literacy had significantly lower mean health literacy scores than those with adequate health literacy [29]. And found that low health literacy increases the risk of adverse stroke-related health outcomes [21]. And related to health literacy, is related to health status and health behavior in patients with coronary artery disease. and prevention of cardiovascular disease [30]. And is consistent with studies that have found higher health literacy may contribute to participation in certain self-management activities. This made the self-care of the subjects at the high level better than at the low and moderate levels [31].

4. CONCLUSION

This study shows that associated factors of non-recurrence stroke among stroke patients, including not drinking alcohol, health literacy, including understanding and applying skills, can be used as guidelines for preventing recurrent stroke among stroke patients. To reduce the recurrence of strokes in patients. Therefore, activities to develop health literacy to prevent recurrence of stroke should be organized for stroke patients. Conduct a research study to study the effectiveness of the health literacy development program to prevent recurrence of stroke.

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