Knowledge and Awareness of Stroke Impacts Among Northern Thai Population

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Abstract: Stroke is a major cause of disability and death. However, there needs to be wider community knowledge of stroke and its severity and symptoms that require prompt treatment as a vital management of stroke risks. This study aimed to identify the level of knowledge of strokes and awareness of stroke severity and its impacts, and to explore the correlation between knowledge and awareness of stroke impacts on older people with stroke risk, on those without stroke risk, and on the younger family members living with older people. This cross-sectional descriptive study was conducted in two sub-districts in Chiang Mai Province, Thailand among 233 and 189 elders with and without stroke risk, and 202 family members. They were purposively selected to complete the Personal Demographic Questionnaire, the Stroke Knowledge and Sources of Knowledge Questionnaire, and the Stroke Awareness Questionnaire. Results revealed that stroke knowledge and awareness of its impacts were high in all three groups and their mean scores were significantly different. The association between knowledge and awareness was statistically significant in older people with stroke risk, those without stroke risk, and the younger family members.

Although the stroke knowledge and awareness of these populations were high, the maintenance of stroke knowledge and awareness of stroke severity is required. The provision of the first aid programs that incorporate stroke management and awareness is warranted at the community level as well, and nurses can be involved in such education and health promotion.

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Background

Stroke is a major cause of death and disability worldwide. In Thailand, stroke is the leading cause of death and long term disability in both men and women.[1] According to data from the Ministry of Public Health,[2] the mortality rate of stroke in Thailand has been increasing during the past 5 years. The mortality rates were 30.0, 32.0, 35.1, 38.0, and 43.5 per 100,000 population in the years 2011 to 2015.[2,3] As the conditions known to be stroke risk factors – including diabetes, hypertension or high blood cholesterol – are increasing due to aging of the

population and unhealthy lifestyles, the incidence of stroke is also projected to increase.[1] It is estimated that at least one new stroke case occurs in Thailand every 2 minutes.[4] For stroke prevalence in the population over the age of 45, the Thai Epidemiological Stroke Study[1] found 1.88% of men had a higher prevalence of stroke than women in all age groups. Stroke prevalence differed among the five geographic regions of the country with the highest prevalence in the capital city of Bangkok (3.34%), followed by central (2.41%), southern (2.29%), northern (1.46%), and north-eastern regions (1.09%).[4]

Stroke is a disease that affects the arteries leading to and within the brain, which can be classified based on vascular etiology into ischemic and hemorrhagic types.[5] Ischemic stroke is the major type of stroke in Thailand and lacunar infarction is the most common subtype, followed by large artery atherosclerosis and cardioembolism.[4] According to hospital-based data, hemorrhagic stroke accounts for about 20% of all stroke cases.[4] Infarction of the brain causes many clinical manifestations including hemiparesis, dysarthria, aphasia, vision alteration, headache, numbness, dizziness or weakness.[5] The severity of disease depends on which brain areas are ischemic.[5, 6]

Currently, prompt administration of fibrinolytic agents (within 3 hours) of the onset of symptoms is beneficial to ischemic stroke.[4,6] These can rescue the ischemic area in the brain, thereby reducing morbidity and mortality as well as preventing permanent disability from stroke.[6] Intravenous thrombolysis with recombinant tissue plasminogen activator is now the standard treatment for patients with acute ischemic stroke and is recommended by the Thai Stroke Guidelines.[4] Also, the stroke fast track system and stroke units have been adopted by many university hospitals in Thailand as well as regional, provincial, and some community hospitals.[7] Through this system, hospital medical triage personnel can identify patients with stroke early so as to take proactive measures for prompt investigation and management with the stroke

team and leading to a higher number of acute stroke patients receiving intravenous thrombolysis within the critical window of time.[4,7] Therefore, it is important that the general population is aware of early manifestations of stroke and seek timely medical attention. However, only a very small proportion of people with acute ischemic stroke in Thailand (0.38% in 2008 to 1.95% in 2012) received intravenous thrombolysis,[4] revealing that most Thai stroke victims did not get proper treatment. The patient and family may waste their time at home not realizing about the disease process and wait until it is too late to get benefit from thrombolytic treatment. The reasons may be lack of knowledge regarding stroke warning signs, early management, and treatment; or unawareness of stroke severity and consequences.

As prompt treatment is an important stroke management strategy, it is important that people know they are having a stroke and know how to immediately manage the situation.[5,6] Public health education regarding stroke warning signs and action at the onset of stroke is needed. To achieve an effective educational program, it is necessary to identify the target population with low stroke knowledge and awareness. Studies conducted in various parts of the world[8-11] showed different levels of knowledge among countries and some also examined the factors associated with knowledge as well as the best source of information for the population.[12-15] However, studies investigating knowledge and awareness of strokes in Thai populations cannot be found.

Conceptual framework and related literature

The health behavior model of Knowledge, Attitude and Practice (KAP) was used to as the conceptual framework in this study. This model was first used in the 1950s in the field of family planning and population.[16] It consists of three components, namely: knowledge, attitude, and practices. The two

components of knowledge and attitude were applied. According to Badran,[17] knowledge is one's capacity to acquire, retain and use information; it is a mixture of comprehension, experience, discernment and skill. In this study, stroke knowledge was defined as a person's capacity to acquire, retain and use information regarding the disease, risk factors, warning signs and early management. Attitude refers to inclinations to react in a certain way to a given situation; to see and interpret events according to certain predispositions; or to organize opinions into coherent and interrelated structures. In this study, attitude related to stroke in the public relates to awareness to the severity and impacts of stroke.

Stroke has been widely accepted as a major health concern throughout the world. Because of the increasing mortality rate and the neurological disability caused by brain damage from delaying thrombolytic treatment, it is vital to prevent stroke occurrence for people, especially for older persons who are at increased risk for stroke.[18] Successful stroke prevention might be done by improving public knowledge about stroke.[19] Lacking stroke knowledge may bring about unhealthy lifestyle behaviors that are related to a greater risk of stroke.[20] Not only is it necessary to increase stroke knowledge in the public, but the awareness of stroke severity and impact also needs to be improved.[21] In order to reduce the occurrence of stroke, both stroke knowledge and awareness need be promoted in the public in a variety of ways, including: educational campaigns and social media.[16] Studies conducted in various countries[8-11] have shown different levels of knowledge, and some have also examined the factors associated with knowledge, as well as the best source of information for the population.[12-15] However, there are limited reports related to stroke knowledge and awareness of stroke severity and impacts in Thai population. To fill the gap regarding this, our study sought to identify in Thai people their level of knowledge about strokes and awareness of stroke severity and impact, and to explore the correlation

between knowledge and awareness of stroke impacts on older people with stroke risk, on those without stroke risk, and on the younger family members living with older people. The ultimate purpose was to get baseline knowledge to develop an effective future community-based education program.

Methods

Design: A cross-sectional descriptive study.

Sample and sampling: The sample size was estimated using Yamane's Equation[22] based on a population size of $140,542$[23] of people >60 years and living in Chiang Mai province. The sample size for this study was 400, including 200 for older people with stroke risk and 200 for those without stroke risk. The number of family members required was based on the number of the older people calculated previously. Thus, the study samples included 233 older people with stroke risk, 189 older people without stroke risk, and 202 family members.

Ethics: Study approval was obtained to conduct the study by the Institutional Review Board of the Faculty of Nursing, Chiang Mai University (Protocol number EXP-042-2558). The researchers explained the purposes and methods of the study, and gave assurances of privacy and confidentiality to participants including ethical considerations to protect their rights. Those agreeing to participate signed an informed consent.

Data Collection

Instruments: There were three instruments used for this study:

(1) **The Personal Demographic Questionnaire (PIQ)** was developed by the researchers to collect the demographic characteristics of older people and family members, and included age, gender, marital status, religion, occupation and household income, body weight, height, body mass index (BMI), systolic and diastolic blood pressure, and any co-morbidity.

（2）**The Stroke Knowledge and Sources of Knowledge Questionnaire（SKSKQ）** was developed by the researchers based on a literature review to assess the knowledge of stroke and its sources. It consists of 22 questions regarding knowledge of disease（3 items）, risk factors（7 items）, warning signs（5 items）, early management（7 items）, and sources of knowledge the participants gained（3 items）. Assessment of stroke knowledge is performed through true-false questions （scoring: 1 = right answer and 0 = wrong answer and do not know）. Example items include: "Can hypertension/ diabetes/dyslipidemia pose a risk for stroke?" and "Can stroke be prevented by lifestyle modification?". The possible scores range from 0-22. For the level of stroke knowledge, this is divided into 3 levels by calculating the class intervals as, low knowledge level, score range from 0-7; medium, 8-14: and high, 15-22.

Content validity was verified by seven experts who specialized in stroke and elderly care（three physicians and four nursing instructors）. The I-CVI and S-CVI were 0.92 and 0.95 respectively. Internal consistency reliability testing was undertaken in the pilot study using the Kuder and Richardson Formula 20. The value of reliability coefficient was .83, while that of the main study was .84.

（3）**The Stroke Awareness Questionnaire**（SAQ） was developed by the researchers based on a literature review and the concept of attitude as defined above. The SAQ measures awareness regarding the severity of stroke and its impacts from the participants' perspective, and consists of 14 items, the content of which was verified by seven experts specializing in stroke and elderly care（three physicians and four nursing instructors）. The participants were asked to rate their awareness regarding stroke severity and its impact on a 4-point scale ranging from 1 to 4 （1 = disagree, 2 = slightly agree, 3 = moderately agree, and 4 = strongly agree）. An example item is: "How do you think that stroke might cause an abnormal communication?". The higher the score, the higher the awareness of severity of stroke and its impacts. The internal consistency of reliability tested with a sample of 20 older persons showed the Cronbach's

alpha coefficient of .84, whereas that of the main study was .86. The level of stroke awareness was divided into 3 levels by calculating class interval as follows: low level of awareness, 0-18: medium, 19-37; and high 38-56.

The inclusion criteria for older people with stroke risk were: aged ≥60; had an ability to communicate in Thai; and having a stroke risk score of >2 out of 8 as assessed using the Stroke Risk Screening Form. This assesses: family history of ischemic heart disease, smoking, history of hypertension, having diabetes with high blood glucose, history of hypercholesterolemia, abnormal BMI, history of cerebrovascular disease, and history of heart disease. Older people without stroke risk were those with a stroke risk score of <2 factors. Family members were people aged 20-60 years, who were living with and responsible for care of older family members.

On the appointed date, participants were asked to come to clinics in two health promoting hospitals. Nurses checked the participants' body weight, height, and blood pressure. The researchers read all questions to the participants who needed assistance due to visual problems or other reasons and recorded their answers. It took approximately 30-45 minutes to complete the questionnaires. All questionnaires were examined carefully to ascertain data completeness and then coded with a number.

Data Analysis

Descriptive statistics were used to determine level of stroke knowledge regarding disease, risk factors, warning signs and early management and stroke awareness of all participants. The differences of stroke knowledge mean scores and stroke awareness mean scores between groups of older people with stroke risk, older people without stroke risk, and younger family members were tested using one way ANOVA. The Chi square test was applied to test the difference of level of stroke knowledge and level of stroke awareness among groups of older people with stroke risk, older people without stroke risk, and younger family members.

The correlation between stroke knowledge and awareness was tested with the Pearson Product Moment test. The effect size magnitude for the correlation can be interpreted based on Cohen's criteria[24] as follows: r =.10-.29: low, r = .30 -.50: moderate, and r >.50: high.

Results

The participants' demographic characteristics are demonstrated in **Table 1**. Participants in both groups of older people were similar in age, which ranged from 58–88 years. Mean ages were 66.57±5.16 and 66.82±5.76 years in the group with stroke risk and without stroke risk respectively. Most of the older people (63.90%) with stroke risk were married, while those without stroke risk were (57.10%) widowed, divorced or separated. Most participants in both groups were Buddhists (98.70% in stroke risk group and 98.4% without risk group) and were still working (98.70% in stroke risk group and 98.4% in without risk group) (See **Table 1**). For family members, most of them were female (73.30%), aged 13-59 years with a mean age of 46.12 years, were widowed, separated or divorced (57.90%), and Buddhists (99%). They were significantly different in terms of marital status and occupation. (See **Table 1**).

Table 1 Demographic characteristics of the participants

Demographic	Older people with risk n (%)	Older people without risk n (%)	Family members n (%)	χ^2 value	p-value
Gender				2.690	.260
Male	79 (33.9)	60 (31.7)	54 (26.7)		
Female	154 (66.1)	129 (68.3)	148 (73.3)		
Age (years)					
Range	59 – 86	58 – 88	13 – 59		
Mean	66.57 (5.16)	66.82 (5.76)	46.12 (11.61)		
Marital Status				49.75**	.000
Single	16 (6.9)	23 (12.2)	53 (26.2)		
Married	149 (63.9)	58 (30.7)	32 (15.9)		
Widow/Divorced/Separated	68 (29.2)	108 (57.1)	117 (57.9)		
Religion				8.34	.214
Buddhist	230 (98.7)	186 (98.4)	200 (99.0)		
Christian	2 (0.9)	1 (0.5)	2 (1.0)		
Others	1 (0.4)	2 (1.1)	–		
Occupation				52.69**	.000
Unemployed	54 (23.2)	47 (24.9)	26 (12.9)		
Merchant	43 (18.5)	38 (20.1)	28 (13.9)		
Farmer	22 (9.4)	11 (5.8)	6 (3.0)		
Paid workers	66 (28.3)	66 (34.9)	78 (38.6)		
Civil servant	2 (0.9)	–	9 (4.5)		
Company /private officer	11 (4.7)	5 (2.6)	26 (12.9)		
Others	35 (15.0)	22 (11.6)	29 (14.4)		

Regarding clinical characteristics, the participants with stroke risk had a higher BMI, blood pressure, and more comorbidity than the group without stroke risk (See **Table 2**).

Table 2 Clinical characteristics of the participants

Demographic	Older people with risk	Older people without risk	Family members
Body weight			
Range	39 − 92	38 − 85	41 − 140
Mean (S.D.)	60.22 (11.82)	54.27 (10.19)	61.03 (14.19)
Height			
Range	139 − 182	138 − 180	141 − 182
Mean (S.D.)	155.47 (8.15)	155.29 (13.22)	158.41 (9.01)
Body mass index (BMI)			
Range	14.77 − 40.34	14.66 − 38.00	15.22 − 48.57
Mean (S.D.)	24.92 (4.43)	22.32 (3.95)	24.27 (4.96)
Systolic blood pressure (SBP)			
Range	85 − 217	89 −190	89 − 172
Mean (S.D.)	135.89 (19.95)	125. 92 (13.98)	122.72 (16.01)
Diastolic blood pressure (DBP)			
Range	46 − 108	50 −100	40 − 93
Mean (S.D.)	75.62 (10.30)	74.55 (9.36)	79.69 (61.44)
Co−morbidity diseases.			
None	29 (12.4)	141 (74.6)	125 (61.9)
Yes	204 (87.6)	48 (25.4)	77 (38.1)
Hypertension	173 (74.2)	15 (7.9)	41 (20.3)
Diabetes Mellitus	64 (27.5)	2 (1.1)	21 (10.4)
Heart Disease	12 (5.2)	1 (0.5)	–
Dyslipidemia	95 (40.8)	2 (1.1)	20 (9.9)
Cancer	3 (1.3)	5 (2.6)	2 (1.)
Others (Gouty arthritis, COPD, peptic ulcer, thyroid disorder)	33 (14.2)	27 (14.3)	24 (11.9)

For knowledge of stroke, from using ANOVA, all groups had a similarly high level of stroke knowledge, both overall knowledge and specific aspects of knowledge. The older people's knowledge was significantly higher than that of younger family members in regards to knowledge of risk factors and warning signs (See **Table 3**).

Table 3 Knowledge of stroke among participants

Knowledge	Possible score	Older people with risk mean (S.D.)	level	Older people without risk mean (S.D.)	level	Family members mean (S.D.)	level	Mean knowledge difference F	p-value	Level knowledge difference χ^2	p-value
Overall	0–22	20.63 (2.52)	High	20.56 (2.62)	High	19.61 (2.82)	High	9.31	.00**	12.156	.016*
Disease	0–3	2.63 (0.73)	High	2.69 (0.67)	High	2.61 (0.64)	High	.67	.51	1.203	.548
Risk factors	0–7	6.54 (0.90)	High	6.55 (1.06)	High	6.03 (1.41)	High	13.66	.00**	22.469	.00**
Warning signs	0–5	4.64 (0.79)	High	4.57 (0.90)	High	4.25 (1.04)	High	10.53	.00**	25.54	.00**
Early management	0–7	6.79 (0.84)	High	6.74 (0.77)	High	6.71 (0.72)	High	.54	.58	4.184	.382

When classifying knowledge into three levels (low, moderate, and high), most participants in all groups showed a high level of overall knowledge as well as knowledge of disease, risk factors, warning sign, and early management. The level of knowledge of risk factors and warning signs were significantly different between older people and family members.

Regarding sources of knowledge, for older people with stroke risk, the top five frequently mentioned sources included health personnel, television, nurses, physicians, and relatives or friends (16.30–48.50%). The least

mentioned source was Internet websites, showing that this media may not be accessible to participants. For older people without stroke risk, the type five sources of knowledge were the same, differently ranked. Another frequent source of information for this group was radio. For family members, the top five sources of stroke knowledge pertaining to risk factors, warning signs, and early management remained the same as well, again with a different rank ordering. However, brochures were regarded as a source of knowledge about risk factors and warning signs but not basic management (See **Table 4**).

Table 4 Sources of knowledge

Source of Knowledge	Older people with stroke risk (n = 233) Risk factors n (%)	Warning signs n (%)	Early management n (%)	Older people without stroke risk (n = 189) Risk factors n (%)	Warning signs n (%)	Early management n (%)	family members (n = 202) Risk factors n (%)	Warning signs n (%)	Early management n (%)
Health personnel	113 (48.5)[1]	107 (45.9)[1]	88 (37.8)[1]	87 (46.0)[2]	83 (43.9)[2]	70 (37.0)[1]	101 (50.0)[2]	98 (48.5)[1]	68 (33.7)[2]
Television	101 (43.3)[2]	77 (33.0)[2]	55 (23.6)[4]	98 (51.9)[1]	89 (14.1)[1]	73 (61.4)[1]	108 (53.5)[1]	97 (48.0)[2]	132 (65.3)[1]
Nurses	78 (33.5)[3]	77 (33.0)[2]	61 (26.2)[2]	41 (21.7)[5]	45 (23.8)[4]	44 (23.3)[4]	53 (26.2)[5]	53 (26.2)[3]	45 (22.3)[4]
Physicians	68 (29.2)[4]	64 (27.5)[4]	56 (24.0)[3]	45 (23.8)[4]	40 (21.2)[5]	39 (20.6)[5]	101 (50.0)[2]	98 (48.5)[1]	68 (33.7)[2]
Relatives/friends	38 (16.3)[5]	33 (14.2)[5]	48 (20.6)[5]	58 (30.7)[3]	54 (28.6)[3]	45 (13.9)[3]	44 (21.8)	43 (21.3)	37 (18.3)[5]
Radio	34 (14.6)	28 (12.0)	22 (9.4)	41 (21.7)	38 (20.1)	23 (12.2)	34 (16.8)	25 (12.4)	17 (8.4)
Brochures	27 (11.6)	25 (10.7)	15 (6.4)	27 (14.3)	27 (14.3)	18 (9.5)	54 (26.7)[4]	49 (24.3)[5]	24 (11.9)
Family members	27 (11.6)	20 (8.6)	13 (5.6)	24 (12.7)	21 (11.1)	19 (10.1)	28 (13.9)	24 (11.9)	21 (10.4)
Others	24 (10.3)	26 (11.2)	–	13 (6.9)	20 (10.6)	–	12 (5.9)	14 (6.9)	12 (5.9)
Newspaper	21 (9.0)	14 (6.0)	12 (5.2)	23 (12.2)	21 (11.1)	15 (7.9)	30 (14.9)	23 (11.4)	17 (8.4)
Community leader	20 (8.6)	18 (7.7)	18 (7.7)	24 (12.7)	22 (11.6)	23 (12.2)	12 (5.9)	14 (6.9)	12 (5.9)
Local radio	19 (8.2)	16 (6.9)	12 (5.2)	19 (10.1)	20 (10.6)	18 (9.5)	14 (6.9)	10 (5.0)	6 (3.0)
Poster	18 (7.7)	16 (6.9)	7 (3.0)	19 (10.1)	16 (8.5)	14 (7.4)	14 (6.9)	10 (5.0)	6 (3.0)
Leaflet	14 (6.0)	9 (3.9)	4 (1.7)	14 (7.4)	17 (9.0)	10 (5.3)	29 (14.4)	21 (10.4	11 (5.4)
Pharmacists	9 (3.9)	4 (1.7)	4 (1.7)	6 (3.2)	9 (4.8)	7 (3.7)	14 (6.9)	8 (4.0)	7 (3.5)
Teachers	7 (3.0)	1 (0.4)	3 (1.3)	6 (3.2)	7 (3.7)	6 (3.2)	12 (5.9)	12 (5.9)	9 (4.5)
Internet Website	5 (2.1)	5 (2.1)	5 (2.1)	12 (6.3)	12 (6.3)	9 (4.8)	39 (19.3)	35 (17.3)	22 (10.9)

Notes: Each participant could give more than one source.

Number 1–5 = ranking of sources of knowledge

Regarding awareness of stroke severity and impacts, data revealed that all three groups of participants had similar mean awareness scores at high levels and no significant differences among these groups as shown in **Table 5**. When classifying the stroke awareness into three levels (low, moderate, and high), most participants in all groups showed high level of stroke awareness but there was no significant difference in stroke awareness among all groups.

Regarding correlation between stroke knowledge and awareness, a significant moderate correlation was found in all groups, r = .364, .303 and .444 for older people with risk, older people without stroke risk and family members, respectively (all p_s < .000).

Table 5 Stroke awareness scores

Awareness	Possible score	Range	mean (S.D.)	Level	F	p-value
Older people with risk	0–56	22–56	50.22(6.80)	High	.532	.631
Older people without risk	0–56	24–56	50.35 (6.08)	High		
Family members	0–56	27–56	49.68(6.10)	High		

Discussion

The results demonstrated that the overall knowledge of stroke as well as knowledge of disease, risk factors, warning signs and early management, was at a high level in the three groups of participants. Even though the scores for overall knowledge, risk factors and warning signs of the family members group were significantly lower than that of both groups of older people, they were still at a high level (**Table 3**). This finding was incongruent with several studies done previously in various countries[25-27, 51] which indicated that the knowledge of stroke of participants was somewhat poor. This incongruency may be due to their accessibility to the stroke knowledge sources in this study. The participants resided in a suburban area of a big modernized province, where the population can reach various sources of knowledge, such as social media via television and Internet websites. Moreover, while previous studies[26,28] used open-ended questions to evaluate the participants' knowledge level, this study used a closed-end questionnaire to assess the knowledge. Closed-end questions may make it easier to rate their own knowledge. However, open-ended questions have an advantage to assess the knowledge of stroke more deeply.

Additionally, current Thai health policy requires all hospitals to work intensively to prevent and control of non-communicable diseases following national guidelines.[29] Health education is a major strategy used by health personnel. As reported by the participants both with and without stroke risk, the major sources of knowledge included health care personnel, physicians, nurses, and TV. Particularly, it is probable that older people with stroke risk who need to see a doctor at least once a month at diabetes and hypertension clinics will receive information about the disease and prevention of complications.

The scores of the awareness of stroke impacts in three groups were also very high in this study. The findings were inconsistent with several studies[28, 30, 31] that revealed the awareness of stroke impacts in participants in Singapore, Brazil, and Jordan was not so high. These findings may be in part due to the experience of participants in taking care of their relatives, friends, neighbors, family members who have had stroke. In northern Thai culture, when people in the same community get problems, particularly those suffer from illness, the sufferer usually have their health problems monitored and supported as much as possible by others before going to the hospital.

The findings also revealed a significantly moderate correlation between the scores of knowledge and awareness of stroke in all three groups. This finding is consistent with the study framework in which knowledge of stroke influences awareness of

stroke severity and impacts. This finding cannot be compared with any previous study because none have been similarly conducted to explore this relationship. Some studies separately explored stroke knowledge or awareness.[9,13,14]

Limitation

This study has a limitation that needs to be taken into consideration when considering findings and future research. Our participants were older people with stroke risk, those without stroke risk, and the younger family members living in two suburban communities in Chiang Mai Province, and findings thus may not be generalized to those who live in other regions of the country.

Conclusions and Implications for Nursing Practice

The findings from this study revealed that stroke knowledge and awareness of its severity and impacts in older people with stroke risk, those without stroke risk, and the younger family members had high scores and the mean scores of stroke knowledge and stroke awareness were not significantly different. The association between knowledge and awareness was statistically significant in all three groups. These results are encouraging; nevertheless, they lend themselves to recommendations for both practice and future research.

For their practice, nurses need to apply the knowledge and awareness found in this study. Knowledge and awareness are crucial for appropriate healthcare seeking behaviors and motivation of health behavior modification. The ranked lists of knowledge sources can guide such maintenance efforts. Given this knowledge, providing first aid programs for potential stroke victims and the family members in the community has the potential to greatly increase health outcomes.

For future nursing research, based on this preliminary data, further study should focus on the development and testing the effectiveness of the maintenance of stroke knowledge and awareness, and the further testing and possible refinement of the study's instruments. Also, a study of health behaviors aimed to prevent stroke should be explored in this population.

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ความรู้และความตระหนักถึงผลกระทบจากโรคหลอดเลือดสมองของประชากรไทยในภาคเหนือ

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บทคัดย่อ: โรคหลอดเลือดสมองเป็นสาเหตุสำคัญของความพิการและการเสียชีวิต ดังนั้นจึงควรมีการให้ความรู้แก่ประชากรในชุมชน เกี่ยวกับโรคหลอดเลือดสมอง ความรุนแรงและอาการที่ต้องรักษาอย่างเร่งด่วน จึงเป็นการจัดการที่สำคัญของโรคหลอดเลือดสมอง การศึกษาเชิงบรรยายภาคตัดขวางครั้งนี้มีวัตถุประสงค์เพื่อสำรวจระดับของความรู้เกี่ยวกับโรคหลอดเลือดสมองและความตระหนักถึงความรุนแรงและผลกระทบจากโรค และเพื่อหาความสัมพันธ์ระหว่างความรู้และความตระหนักความรุนแรงถึงผลกระทบของผู้สูงอายุที่มีความเสี่ยงต่อโรค ผู้สูงอายุที่ไม่มีความเสี่ยงต่อโรค และสมาชิกครอบครัวที่อาศัยอยู่กับผู้สูงอายุ การศึกษาครั้งนี้ดำเนินการใน 2 ตำบลของจังหวัดเชียงใหม่ โดยศึกษาในผู้สูงอายุที่มีภาวะเสี่ยงต่อโรคหลอดเลือดสมองจำนวน 233 คน ผู้ที่ไม่มีภาวะเสี่ยงจำนวน 189 คน และสมาชิกครอบครัวที่อาศัยกับผู้สูงอายุจำนวน 202 คน ให้กลุ่มตัวอย่างที่คัดเลือกแบบเฉพาะเจาะจงตามคุณสมบัติที่กำหนดตอบแบบบันทึกข้อมูลส่วนบุคคล แบบวัดความรู้โรคหลอดเลือดสมองและแหล่งความรู้ และแบบวัดความตระหนักต่อโรคหลอดเลือดสมอง ผลการศึกษาพบว่า กลุ่มตัวอย่างทั้ง 3 กลุ่ม มีความรู้เกี่ยวกับโรคหลอดเลือดสมองและความตระหนักถึงความรุนแรงและผลกระทบจากโรคในระดับสูง โดยคะแนนเฉลี่ยของกลุ่มตัวอย่างมีความแตกต่างกันอย่างมีนัยสำคัญ และพบว่าความรู้มีความสัมพันธ์กับความตระหนักถึงความรุนแรงและผลกระทบจากโรคอย่างมีนัยสำคัญทางสถิติ

แม้ว่าความรู้เกี่ยวกับโรคและความตระหนักถึงความรุนแรงและผลกระทบจากโรคหลอดเลือดสมองของกลุ่มตัวอย่างอยู่ในระดับสูง แต่ยังมีความจำเป็นที่จะต้องคงไว้ซึ่งความรู้และความตระหนักถึงความรุนแรงของโรคและการพัฒนาโปรแกรมการให้ความรู้ ซึ่งครอบคลุมการจัดการโรคหลอดเลือดสมองและสร้างความตระหนักในระดับชุมชนด้วย ซึ่งพยาบาลสามารถมีส่วนส่งเสริมความรู้และการดูแลสุขภาพดังกล่าว

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