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Knowledge, Attitudes, and Preventive Behaviors Towards Stroke: A Study Among Employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch

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Abstract

A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked or ruptured. If the blood supply to part of the brain is interrupted or stopped, this can cause brain cells to die. Stroke is a health problem that must be noticed and understood by the whole community considering the high mortality and disability rates among working-age adults caused by this disease. Limited public knowledge towards stroke will result in no/lack of prevention efforts and can lead to delays in treating stroke. This research is a descriptive study with a cross-sectional approach that aims to describe the knowledge, attitudes, and preventive behaviors towards stroke among employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch. The primary source for the data used was an online questionnaire addressed to 48 employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch as the study subjects. Based on the results of measuring the variables, it can be concluded that most of the employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch have poor knowledge, good attitudes, and poor preventive behaviors towards stroke.

Keywords: Attitudes, Employees, Knowledge, Preventive Behaviors, Stroke

1. Introduction

A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked or ruptured. If the blood supply to part of the brain is interrupted or stopped, this can cause brain cells to die.[1] According to the World Health Organization (WHO), stroke is defined as rapidly developing clinical signs of focal/global disturbance of cerebral function, lasting ≥24 hours or leading to death, with no apparent cause other than of vascular origin.[2,3]

WSO data shows that there are over 12.2 million new cases of stroke each year. Globally, one in four people over age 25 will have a stroke in their lifetime.[4] Stroke is the second leading cause of death worldwide with an annual mortality rate of around 5.5 million and the third leading cause of disability worldwide which results in up to 50% of stroke survivors are permanently disabled.[2,3,5]

Stroke is a health problem that must be noticed and understood by the whole community considering the high mortality and disability rates among working-age adults caused by this disease. It takes good knowledge about stroke by the whole community, especially those who are at high risk because limited public knowledge towards stroke will result in no/lack of prevention efforts and can lead to delays in treating stroke. Therefore, this study aims to describe the knowledge, attitudes, and preventive behaviors towards stroke.

Based on the information obtained from PT. PP London Sumatra Indonesia Tbk. Palembang Branch, in the last 10 years, there were four employees who had a stroke and two of them decided to resign. The researchers chose the employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch as the study population with the consideration that this company's employees can have risk factors for stroke, namely: men

or women of productive age who live in urban areas[3] and work in industrial companies.[6]

2. Methods

This research is a descriptive study with a cross-sectional approach that aims to describe the knowledge, attitudes, and preventive behaviors towards stroke among employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch. Research data was collected, processed, and analyzed in October 2022. The primary source for the data used was an online questionnaire addressed to 48 employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch as the study subjects that had been selected using consecutive sampling method.

A total of 19 questions were made to measure respondents' level of knowledge, attitudes, and preventive behaviors towards stroke. The results of measuring the three variables were categorized into Bloom's cut-off point as follows: *good* (score ≥80%), *fair* (score ≥60%–<80%), or *poor* (score <60%). The questionnaire was tested to 21 employees of Dinas PUBMTR of South Sumatra. Cronbach's Alpha coefficient was used to measure the reliability of this questionnaire. The results showed that the values of Cronbach's Alpha range from 0.630–0.910, indicating the questionnaire is reliable.

3. Results

3.1. Demographic Characteristics

The distribution of demographic characteristics (age, gender, and education level) of respondents can be seen in Table 1. Most of the respondents are in the productive age group of 25–34 years and 45–54 years, with 16 employees (33.3%) in each age group. The data shows that 52.1% of respondents are male and 47.9% are female. The majority (87.5%) of respondents had completed a graduate or undergraduate degree.

Table 1. Demographic Characteristics of Respondents

Characteristics		*n*	(%)
Age	18–24	1	(2.1)
	25–34	16	(33.3)
	35–44	14	(29.2)
	45–54	16	(33.3)
	55–64	1	(2.1)
	Total	48	(100)
Gender	Male	25	(52.1)
	Female	23	(47.9)
	Total	48	(100)
Education Level	Graduate or Undergraduate	42	(87.5)
	High School	6	(12.5)
	Total	48	(100)

3.2. Information Sources

Table 2. shows the distribution of information source most frequently accessed by respondents to obtain stroke-related information. The largest percentage (47.9%) of respondents indicated family and friends as their source of information, followed by electronic media (37.5%) and print media (10.4%).

Table 2. Information Sources of Respondents

Information Sources	*n*	(%)
Family and friends	23	(47.9)
Electronic media	18	(37.5)
Print media	5	(10.4)
Other	1	(2.1)
Never had	1	(2.1)
Total	48	(100)

3.3. Knowledge: Definition of Stroke

Table 3. shows the distribution of respondents' answers to the question "What is the definition of stroke?" Over half (62.5%) of the respondents indicated knowing a blood vessel in the brain is blocked as the definition of stroke, followed by a blood vessel in the brain leaks or ruptures (39.6%) and an abrupt interruption that causes loss of neurological function (20.8%). Meanwhile, there are a few

respondents who incorrectly identified stroke as: a blood vessel in the heart is blocked (18.8%) or the blood supply to the heart suddenly stops (2.1%).

Table 3. Answers to the Question about the Definition of Stroke

Answers	*n*	(%)
A blood vessel in the brain is blocked	30	(62.5)
A blood vessel in the brain leaks or ruptures	19	(39.6)
An abrupt interruption that causes loss of neurological function	10	(20.8)
A blood vessel in the heart is blocked	9	(18.8)
The blood supply to the heart suddenly stops	1	(2.1)
Do not know	1	(2.1)

3.4. Knowledge: Risk Factors for Stroke

The distribution of respondents' answers to the question "What are the risk factors that can lead to stroke?" can be seen in Table 4. The majority (79.2%) of respondents identified hypertension as a risk factor for stroke. Furthermore, more than half (66.7%) of the respondents indicated knowing dyslipidemia as the stroke risk factor. However, only a few (18.8%) respondents indicated knowing diabetes mellitus is also a risk factor for stroke.

Table 4. Answers to the Question about the Risk Factors for Stroke

Answers	*n*	(%)
Hypertension	38	(79.2)
Dyslipidemia	32	(66.7)
History of stroke	17	(35.4)
Obesity	17	(35.4)
Tobacco smoking	17	(35.4)
Heart disease	15	(31.3)
Alcohol consumption	14	(29.2)
Diabetes mellitus (DM)	9	(18.8)

3.5. Knowledge: Stroke Signs and Symptoms

Table 5. shows the distribution of respondents' answers to the question "What are the signs and symptoms of a stroke?" The most common stroke signs and symptoms identified by 35 (72.9%) respondents were sudden droopy mouth and difficulty swallowing or choking; followed by sudden weakness on one side of the face, arm, or leg (70.8%). However, only a few (8.3%) respondents indicated knowing sudden dim vision and blurry vision that appears only in one eye are also stroke signs and symptoms. Meanwhile, there are a few respondents who incorrectly identified stroke signs and symptoms as: sudden heart palpitations and chest pain (12.5%) or sudden weight loss (2.1%).

Table 5. Answers to the Question about Stroke Signs and Symptoms

Answers	*n*	(%)
Sudden droopy mouth, difficulty swallowing or choking	35	(72.9)
Sudden weakness on one side of the face, arm, or leg	34	(70.8)
Sudden slurred speech, trouble speaking or understanding speech	27	(56.3)
Sudden numbness and tingling on one side of the body	27	(56.3)
Sudden and severe headache, dizziness or sudden falls with no other cause	15	(31.3)
Sudden dim vision, blurry vision that appears only in one eye	4	(8.3)
Sudden heart palpitations and chest pain	6	(12.5)
Sudden weight loss	1	(2.1)
Do not know	1	(2.1)

3.6. Knowledge: Stroke Prevention

The distribution of respondents' answers to the question "What can help prevent a stroke" can be seen in Table 6. The most common stroke prevention identified by 42 (87.5%) respondents was regular physical activity. Furthermore, there are three-quarters of respondents who correctly identified stroke preventions as healthy diet and manage high blood pressure. Over half of the respondents indicated knowing manage cholesterol levels (64.6%), quit drinking alcohol (54.2%), and quit smoking or avoid secondhand smoke (52.1%) are also ways to prevent a stroke.

Table 6. Answers to the Question about Stroke Prevention

Answers	*n*	(%)
Regular physical activity	42	(87.5)
Healthy diet; Limit fat, sugar, and salt intake	36	(75.0)
Manage high blood pressure	36	(75.0)
Manage cholesterol levels	31	(64.6)
Quit drinking alcohol	26	(54.2)
Quit smoking and avoid secondhand smoke	25	(52.1)
Maintain a healthy weight	22	(45.8)

Table 7. Answers to the Question about the Complications of Stroke

Answers	*n*	(%)
Paralysis	44	(91.7)
Speech problems	42	(87.5)
Death	31	(64.6)
Vision problems	15	(31.3)
Depression	12	(25.0)
Cognitive deficits	11	(22.9)
Urinary problems	6	(12.5)

3.7. Knowledge: Complications of Stroke

Table 7. shows the distribution of respondents' answers to the question "What complications/problems may occur after a stroke" The largest percentage (91.7%) of respondents indicated knowing paralysis as a complication of stroke, followed by speech problems (87.5%) and death (64.6%). However, only a few respondents (12.5%) indicated knowing urinary problems are also stroke complications.

3.8. Attitudes Towards Stroke

The distribution of respondents' answers to the statements that test their attitudes in dealing with stroke-related problems is given below (Table 8.).

Table 8. Answers to the Statements Related to Attitudes Towards Stroke

Attitudes	Answers	
	Agree	Disagree
	n (%)	*n* (%)
For those aged <45 years, don't worry too much about stroke because it occurs only in older people.	0 (0.0)	48 (100)
As first aid for a stroke, do a needle stick on the ear, finger, or toe.	27 (56.3)	21 (43.8)
If you see someone with a sudden droopy mouth or slurred speech, immediately take them to alternative therapy.	11 (22.9)	37 (77.1)
Do not rush. If the stroke symptoms disappear, there is no need to see a doctor.	2 (4.2)	46 (95.8)
Give up and be patient when finding someone with a stroke because no medicine can cure it.	2 (4.2)	46 (95.8)

These data show that all respondents understand a stroke can happen to anyone of any age. Furthermore, the majority (77.1%–95.8%) of respondents implicitly

know that they should seek immediate medical help if suspect someone with symptoms of a stroke (even after the symptoms disappear), so treatment can be carried out more quickly. However, more than half (56.3%) of the respondents indicated they believe the false information "do needle stick on the ear, finger, or toe as first aid for a stroke."

3.9. Preventive Behaviors Towards Stroke

The distribution of respondents' answers to the statements that test their behaviors in stroke prevention is shown below (Table 9.).

Table 9. Answers to the Statements Related to Preventive Behaviors Towards Stroke

Preventive Behaviors	Answers			
	Always	Often	Seldom	Never
	n (%)	*n* (%)	*n* (%)	*n* (%)
Measure blood pressure	8 (16.7)	16 (33.3)	19 (39.6)	5 (10.4)
Check blood glucose and cholesterol levels	15 (31.3)	9 (18.8)	19 (39.6)	5 (10.4)
Measure body weight or waist circumference	6 (12.5)	17 (35.4)	19 (39.6)	6 (12.5)
Exercise 30 minutes a day	5 (10.4)	7 (14.6)	30 (62.5)	6 (12.5)
Eat fruits and vegetables	14 (29.2)	23 (47.9)	10 (20.8)	1 (2.1)
Limit sugar intake to 50 g or 4 tbsp a day	12 (25.0)	17 (35.4)	13 (27.1)	6 (12.5)
Limit salt intake to 5 g or 1 tsp a day	7 (14.6)	17 (35.4)	17 (35.4)	7 (14.6)
Limit fat intake to 67 g or 5 tbsp a day	8 (16.7)	14 (29.2)	19 (39.6)	7 (14.6)
Sleep 7–8 hours a day	23 (47.9)	11 (22.9)	13 (27.1)	1 (2.1)

Table 9. shows that most (39.6%) of the respondents admitted they seldom do a health screening, such as measuring blood pressure, checking blood glucose or cholesterol levels, and measuring body weight or waist circumference. In addition, the majority of respondents also admitted they seldom (62.5%) and never (12.5%) did physical exercise at least 30 minutes a day. However, most of the respondents said that they always (47.9%) and often (22.9%) have enough sleep (7–8 hours/day).

In terms of eating habits, the majority of respondents admitted they always (29.2%) and often (47.9%) consumed fruits and vegetables. Furthermore, most of the respondents said that they always (25.0%) and often (35.4%) limit daily sugar consumption. However, the majority of respondents admitted they seldom (35.4%–39.6%) and never (14.6%) limit daily salt and fat consumption.

3.10. Knowledge, Attitudes, and Preventive Behaviors Towards Stroke

Based on the results of measuring the three variables (Table 10.), it is shown that most of the employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch have poor knowledge (72.9%), good attitudes (79.2%), and poor preventive behaviors (60.4%) towards stroke.

Table 10. Results of Variables Measurement

Variables		*n*	(%)
Knowledge	Good	5	(10.4)
	Fair	8	(16.7)
	Poor	35	(72.9)
	Total	48	(100)
Attitudes	Good	38	(79.2)
	Fair	9	(18.8)
	Poor	1	(2.1)
	Total	48	(100)
Preventive Behaviors	Good	6	(12.5)
	Fair	13	(27.1)
	Poor	29	(60.4)

Total	48	(100)

4. Discussion

The demographic characteristics of respondents correspond to the categories of people at high risk of stroke, namely: men or women of productive age who live in urban areas[3] and work in industrial companies.[6] The increased risk of stroke in employees relates to a sedentary lifestyle and workplace stress. Sedentary time of >8 hours/day is associated with an increased risk of long-term stroke among individuals aged <60 years with low physical activity.[7] Additionally, people with high-stress jobs had a 22% higher risk of stroke and were 58% more likely to have an ischemic stroke than those with low-stress jobs.[6]

Electronic media, print media, or family and friends are still effective and practical sources of information for the community up till now. This study shows that most of the employees obtain stroke-related information through family and friends. According to Notoatmodjo (2010), personal or someone else's experience can influence one's knowledge.[8] If the information obtained by the public is incomplete or comes from inaccurate sources, then this can mislead the public's knowledge.

This study shows the majority (72.9%) of employees have poor knowledge towards stroke. According to research in 2016, the level of public knowledge about stroke is still in the poor category.[9] While the research in 2012 has shown that the level of knowledge about stroke in the age group over 35 years is dominated by fair knowledge (44.7%) and poor knowledge (40.0%).[10] However, in a recent report, it emerged that most of the locals of Jetiskarangpung Village, Kalijambe, Sragen have a good level of knowledge of stroke (72.5%).[11] Variations in results may be caused by several factors that affect the level of knowledge, such as experience, education, beliefs, facilities, income, and social culture of the community.[8]

Most (79.2%) of the employees have good attitudes towards stroke. A recent report has indicated that most hypertensive patients in the neurology ward of the Kotamobagu Hospital had good attitudes (63.3%).[12] However, these results were quite different from a study in 2016 which proved a balanced number of positive attitudes (50%) and negative attitudes (50%) in people aged ≤45 years with hypertension at the Ngemplak Simongan Public Health Center, Semarang.[13] Many factors lead to the development of one's attitude, including personal experience, the influence of other people, culture, the media mass, and emotional factors.[14] If the influencing factors tend to be positive, then the community will have a positive attitude. On the contrary, if the influencing factors tend to be negative, then society will also have a negative attitude.[15]

The majority (60.4%) of employees have poor preventive behaviors towards stroke. Research findings reveal that most (74.2%) people aged ≤45 years with hypertension at the Ngemplak Simongan Public Health Center, Semarang have poor stroke prevention behaviors.[13] Variations in results may be caused by several factors that influence the level of health behaviour, including age, occupation, education, knowledge, attitudes, beliefs, availability of health facilities, as well as support from community leaders.[8]

This study has potential limitations. Close-ended questions are used on the questionnaire, which allows the respondents to choose the correct answer, even if it is not by the actual conditions (especially in measuring the attitudes variables using the Guttman scale). In addition, the online questionnaire link was distributed to all employees simultaneously, so it was not possible to supervise all respondents when they filled out the questionnaire.

5. Conclusion

Most of the employees of PT. PP London Sumatra Indonesia Tbk. Palembang Branch have poor knowledge, good attitudes, and poor preventive behaviors towards stroke. Based on these findings, continuous health education is needed regarding knowledge and prevention of stroke.

References

1. Centers for Disease Control and Prevention (CDC). About Stroke. U.S. Department of Health & Human Services. 2022.
2. Donkor ES. Stroke in the 21st Century: A Snapshot of the Burden, Epidemiology, and Quality of Life. Vol. 2018, Stroke Research and Treatment. Hindawi Limited; 2018.
3. Kementerian Kesehatan Republik Indonesia. Infodatin Stroke: Don't be the One. Pusat Data dan Informasi Kementerian Kesehatan RI. Pusat Data dan Teknologi Informasi (Pusdatin) Kementerian Kesehatan RI; 2019. p. 10.
4. World Stroke Organization (WSO). Global Stroke Fact Sheet 2022. 2022;1–14.
5. World Stroke Organization (WSO). World Stroke Day Campaign / Why stroke matters / Learn about stroke. © Copyright World Stroke Organization 2022. 2022.
6. Huang Y, Xu S, Hua J, Zhu D, Liu C, Hu Y, et al. Association between job strain and risk of incident stroke: A meta-analysis. Neurology. 2015 Nov;85(19):1648–54.
7. Joundi RA, Patten SB, Williams JVA, Smith EE. Association Between Excess Leisure Sedentary Time and Risk of Stroke in Young Individuals. Stroke. 2021;52(11):3562–8.
8. Notoatmodjo S. Promosi Kesehatan dan Ilmu Perilaku. Jakarta: Rineka Cipta; 2010.
9. Ayuni R. Tingkat Pengetahuan tentang Stroke pada Masyarakat Kecamatan Medan Selayang, Kelurahan Tanjung Sari Lingkungan XIV Tahun 2016. Univ Sumatera Utara. 2016;
10. Zulfa R. Hubungan Tingkat Faktor Risiko Dengan Pengetahuan Stroke Pada Kelompok Usia di Atas 35 Tahun di RW 09 Kelurahan Cirendeu Kecamatan Ciputat Timur Tahun 2012. UIN Syarif Hidayatullah. 2012;32–3.
11. Anggraeni T, Rejo. Gambaran Pengetahuan Masyarakat Tentang Stroke Di Desa Jetis Karangpung, Kalijambe, Sragen. Indones J Med Sci. 2018;5(2):15–20.
12. Watung GIV. Hubungan Pengetahuan dan Sikap dengan Upaya Pencegahan Stroke pada Pasien Hipertensi di Ruangan Poli Saraf RSUD Kota Kotamobagu. Coping Community Publ Nurs. 2021;9(1):119.
13. Muswanti IJ. HUBUNGAN PENGETAHUAN DAN SIKAP DENGAN PERILAKU PENCEGAHAN KOMPLIKASI STROKE PADA PENDERITA HIPERTENSI USIA ≤ 45 TAHUN DI PUSKESMAS NGEMPLAK SIMONGAN KOTA SEMARANG. Univ Negeri Semarang. 2016;77.
14. Azwar S. Sikap Manusia: Teori dan Pengukurannya. Yogyakarta: Pustaka Pelajar; 2011.
15. Fuadi FI. Hubungan Antara Pengetahuan dengan Sikap Masyarakat dalam Mencegah Leptospirosis di Desa Pabelan Kecamatan Kartasura Kabupaten Sukoharjo. Univ MUHAMMADIYAH SURAKARTA. 2016;1–17.