TRAINING ON EARLY DETECTION OF STROKE FOR HEALTH CADRES TO PREVENT DISABILITY AFTER STROKE IN THE KEBONSARI VILLAGE AREA

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ABSTRACT

Early detection of stroke is an effort to prevent more severe disability in stroke patients. Delays in bringing stroke patients to the hospital are one of the reasons why patients miss the golden period of stroke treatment. Health cadres play an important role in identifying health problems in the community, but most cadres do not understand how to carry out early stroke detection. To increase the knowledge and ability of cadres in detecting strokes so that treatment does not exceed the golden period of strokes. The method used in this community service activity is a participative educational approach, including providing health education and demonstrations regarding early stroke detection. This activity was conducted in April 2023 and was attended by 35 health cadres. Knowledge and ability to detect stroke are evaluated used knowledge questionnaire instruments and observation sheets. The results of community service show that the knowledge and ability to perform stroke detection among cadres has increased after training. Cadres' knowledge and ability to detect stroke in the health community can be improved through early stroke detection training. It is hoped that trained health cadres can provide health education to other residents to increase residents' knowledge about stroke and when is the right time to take patients to hospital.

Keywords: Early Detection, Health Cadres, Non-Communicable Disease, Stroke

1. INTRODUCTION

Stroke is a disorder of brain function that develops rapidly with clinical symptoms that occur more than 24 hours and are caused by disruption of cerebral blood flow (Kemenkes, 2019b). Southeast Asia is a leader in intracerebral hemorrhage worldwide and has the highest stroke mortality rate (AHA, 2023). In addition, stroke was the leading cause of death in Indonesia, a Southeast country, from 2007 to 2017 (Riskesdas, 2018a). It is important to take care when dealing with stroke, which is an emergency health condition (Kaur et al., 2022). Continuous health monitoring is necessary for a person who has been diagnosed with stroke disease. The stroke starts with a mini stroke, which is known as transient ischemic attacks (TIA). It is the condition that reveals that the person will face a stroke within

a couple of days after the occurrence of the mini-stroke (Zhang et al., 2020). Preventing the loss of life and severe brain damage is possible in 85% of cases if the stroke is detected or diagnosed early (Lee et al., 2020). Senior citizens require more attention because it is more lethal for the aging community. Continuous monitoring and observation are necessary for diseases like stroke. The daily rise in stroke cases is due to stress, inactivity, drug consumption, and poor dietary habits (Kaur et al., 2022).

The location for community service is in Kebonsari Village, which is one of the areas in Jambangan District in the City of Surabaya. Administratively, Kebonsari Village consists of 3 Residents units and 28 Neighborhood Units. The area of Kebonsari Village, based on 2021 monograph data, is 76 hectares and the population taken in RW 01 is 101 families from NU 01 to NU 10. In the southern part, this village borders Pagesangan village. To the west the village borders the Surabaya River. To the east it borders the village of Ketintang. Meanwhile, in the north, this village borders Jambangan village. The health facility in Kebonsari Village is the Kebonsari Community Health Center. The health problems that many people in RU 01 experience are hypertension (47.5%) and diabetes mellitus (31.5%), while 25 people are suffering from post-stroke. Hypertension and Diabetes Mellitus are risk factors for stroke (Kernan et al., 2014). Stroke is a focal or global acute neurological disorder caused by blood vessel disorders and lasting more than 24 hours or causing death (Sanyasi & Pinzon, 2018). As many as 80% of stroke cases are ischemic strokes caused by thrombus and embolism (Wijaya, 2013).

Detecting stroke symptoms and activating the emergency medical services system immediately is crucial for patient outcomes. Optimal outcomes can be achieved if an acute stroke is detected early and the patient presents to the Emergency Department within the first 60 minutes of onset (Bat-Erdene & Saver, 2021; Kim et al., 2017). The number of stroke patients who arrive via Emergency Medical Services (EMS) is less than 60% (Mochari-Greenberger et al., 2015). Most stroke emergency calls to EMS systems occur more than an hour after symptom onset (Mosley et al., 2007). The 2018 Riskesdas shows that there has been an increase in the key PTM indicators listed in the 2015-2019 RPJMN. One type of disease that includes NCDs is stroke (Riskesdas, 2018b). A significant increase in PTM cases is expected to increase the burden on society and also the government because handling it requires large costs and requires high-tech support. This can be seen from the data reported by the Health Social Security Administration (BPJS) in 2017, amounting to 10,801,787 million people (5.7% of JKN participants) who received services for catastrophic illnesses. The costs spent amounted to 14.6 trillion rupiah (21.8%) of all health service costs (P2PTM, 2019). In efforts to prevent and control NCDs in Indonesia, it needs to be managed well so that it is deemed necessary to involve various parties at all levels of society, including health cadres in the community.

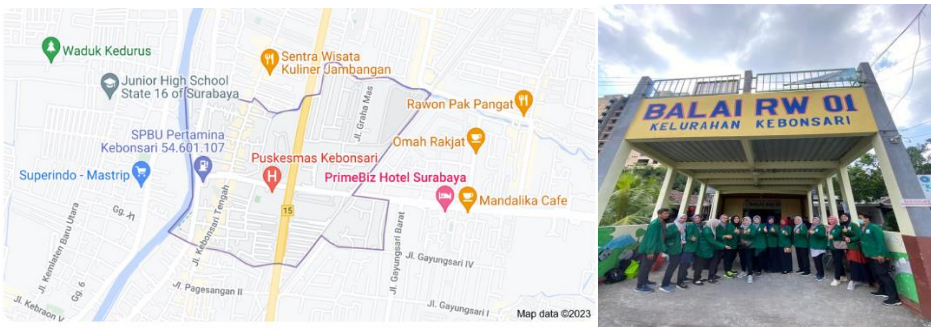
In an effort to prevent non-communicable diseases such as stroke, it is recommended that every individual improve a healthy lifestyle with "CERDIK" behavior, namely regular health checks, getting rid of cigarette smoke, regular physical activity, a healthy and balanced diet, getting enough rest, and managing stress (Kemenkes, 2022). Meanwhile, the public is asked to

remember the slogan "SEGERA KE RUMAH SAKIT" for early stroke detection. The main concept in treating stroke is to provide specific treatment immediately after the attack. The problem that arises is that the public does not recognize the early symptoms of a stroke. A simple assessment tool for stroke is "GO TO THE HOSPITAL IMMEDIATELY", namely asymmetrical smile, sudden weakening of half of the body's movements, slurred speech or sudden unable to speak or not understanding words/speech, numbness or numbness, short-sightedness, Severe headaches that appear suddenly and impaired balance function. Don't take it lightly if you feel symptoms or signs of having a stroke as above, don't wait until it gets worse, go to the hospital immediately (Kemenkes, 2019a). It is hoped that this Early Detection of Stroke Attack Training for Health Cadres will be able to detect people who show these symptoms and signs and immediately take them to the hospital to receive treatment as quickly as possible because there is a golden period for stroke treatment so that sufferers are helped and reduce the risk of death or permanent disability (Huttami & Hidajah, 2020). The golden period is a valuable time for stroke treatment, less than 4.5 hours from when symptoms and signs first appear until stroke treatment is carried out at the hospital (di Biase et al., 2022; Gariel et al., 2018). So the patient must arrive at the hospital in less than 2 hours. The examination and treatment process takes a maximum of 2.5 hours. If treatment is delayed or it lasts more than 4.5 hours, the stroke will become serious and there is a risk of death or permanent disability (Mahendradhata et al., 2017; Powers et al., 2019)

2. PROBLEMS AND PROBLEM QUESTION

The actual problem that occurs in the field is that health cadres in RW 01, Kebonsari Subdistrict, Surabaya, have never received training on early detection of strokes, so this causes many residents to be taken to hospital late (after the golden period of 4.5 hours after a stroke). Treatment delays can result in more widespread functional disorders, even permanent nerve damage.

The question formulation for this community service activity is how to prevent disability after stroke through early stroke detection training for health workers?



Picture 1. Lokasi PKM

3. LITERATURE REVIEW

Stroke is classically characterized as a neurological deficit associated with acute focal injury of the central nervous system (CNS) by vascular causes, including cerebral infarction, intracerebral hemorrhage, and subarachnoid hemorrhage. It is a leading cause of disability and death worldwide (Sacco et al., 2013). Stroke is the main cause of death at all ages, with a proportion of 15.4%. 2.3 Stroke can be divided into two, namely non-hemorrhagic stroke and hemorrhagic stroke. Most (80%) are caused by non-hemorrhagic strokes. Non-hemorrhagic strokes can be caused by thrombus and embolism (Wijaya, 2013).

The stroke syndrome has traditionally been divided into two broad categories: hemorrhagic (bleeding) stroke and thrombotic (ischemic) stroke. The two phenotypes are viewed as being diametrically opposed conditions because hemorrhage is characterized by bleeding into the brain tissue, leading to hematoma and brain tissue shift. Ischemia results from blood clots in the intracranial vasculature, which causes hypoxia to a specific part of the brain due to reduced blood supply (Chang, 2020).

Stroke is currently defined as an acute brain syndrome caused by either hemorrhage or thrombosis through two different hemostatic processes. Hemorrhage results from intracranial bleeding caused by vascular injury (such as malignant hypertension, damage to vascular anomaly, or trauma). Blood clots (e.g., detached small endothelial plaque or large atheroma) at an intra-cranial intravascular site cause thrombosis. Different hemostasis results in two separate events, hemorrhage and thrombosis in stroke (Chang, 2018).

Hemorrhagic and ischemic stroke have similar risk factors, but some notable differences exist. Additionally, there are differences in risk factors among the etiologic categories of ischemic stroke. There are multiple risk factors for stroke, including modifiable (e.g., diet and comorbid conditions) and nonmodifiable (e.g., age and race). In addition, risk factors may also be thought of as short-term risks or triggers (e.g., infectious events, sepsis, and stress), intermediate-term risk factors (e.g., hypertension and hyperlipidemia), and long-term risk factors for stroke (age, sex, and race) (Boehme et al., 2017). Modifiable risk factors can be further divided into medical conditions and behavioral risk factors. Hypertension is a significant risk factor for hemorrhagic stroke, but it can also be a risk factor for atherosclerotic disease that can cause ischemic stroke (Hägg-Holmberg et al., 2019). Hyperlipidemia is a significant risk factor for strokes due to atherosclerosis of both extracranial and intracranial blood vessels (Menet et al., 2018). Cardioembolic stroke is associated with atrial fibrillation (AF).

Detecting ischemic stroke early is crucial to initiate thrombolytic therapy as soon as possible and reduce the mortality and morbidity of CVA (Sajjadi et al., 2012). Stroke is highly time-sensitive, and the time it takes to manage it directly correlates with patient outcome. However, patient outcomes have been improved by early recognition, diagnosis, and transportation to appropriate treatment facilities (Crause & Stassen, 2020). Some screening tests are used to identify stroke symptoms, including FAST

(Face, Arm, Speech, Time), the Cincinnati Prehospital Stroke Scale (CPSS), the Los Angeles Prehospital Stroke Screen (LAPSS) and the Melbourne Ambulance Stroke Screen (MASS) (Brandler et al., 2014). FAST was created in 1998 and aims to accurately diagnose stroke while minimizing the time spent on the scene. The assessment considers facial droop, arm drift, and slurred speech as indicators of stroke, with a 97% sensitivity, and emphasizes the importance of timely transportation and definitive care (Harbison et al., 2003).

Some signs and symptoms that arise from a stroke are weakness in the face, hands or feet, especially on one side of the body, speech problems, short-sightedness, headaches, dizziness, vertigo and loss of balance. So that stroke treatment can be optimal, people need to understand how to recognize stroke symptoms early. The slogan from the Indonesian Ministry of Health, in the form of "SeGeRa Ke RS", can be used to help recognize a stroke that has occurred, including: 1) Senyum tidak simetris (Asymmetrical smile), 2) Gerak separuh anggota tubuh melemah tiba-tiba (Movement of half of the body's limbs suddenly weakens), 3) BicaRa pelo atau tiba-tiba tidak dapat bicara atau tidak mengerti kata-kata/bicara (Slurred speech or suddenly unable to speak or not understanding words/speech), 4) Kebas atau baal (numbness), 5) Rabun (Short-sightedness), 6) Sakit kepala hebat yang muncul tiba-tiba dan gangguan fungsi keseimbangan (Severe headaches that appear suddenly and impaired balance function) (Kemenkes, 2019a). So this community service aims to prevent disability after stroke through early stroke detection training for health cadres in the kebonsari village area.

4. METHODS

The method used in this community service activity is a participatory educational approach with the following explanation:

a. Setting
   This activity will be carried out at Residents Unit Hall 01, Kebonsari Village, Kec. Jambangan, Surabaya
b. Participants
   Participants are elderly cadres in RW 01 Kebonsari Village, Kec. Jambangan, Surabaya as many as 35 health cadres
c. Implementation
   1) Providing health education about the concept of stroke and the importance of early stroke detection.
   2) Training on how to detect stroke using Early Detection of Stroke Module. A team of community service lecturers created and owned this module and it was distributed to health cadres.
d. Monitoring and Evaluation
   1) Evaluation is carried out through pre-tests and post-tests given before and after health education activities via paper-based questionnaires.
   2) Demonstration of how to detect a stroke and the actions that must be taken.
e. Output
   1) Publication of articles in the Community Service Journal

2) Creation of an Early Stroke Detection module
3) Publication in mass/electronic media.

f. Partner participation in program implementation
Partners play a role in providing facilities for carrying out this activity in Residents Unit Hall 01, Kebonsari Village, Kec. Jambangan, Surabaya

g. How to evaluate program implementation and program sustainability after community service activities are completed.
Health cadres can carry out accurate early detection of residents suffering from stroke.

5. RESULTS AND DISCUSSION

a. Results

Table 1. Characteristics of respondents (n=35)

Characteristics	Frequency	Percentage (%)
Age (years)		
26-35	5	14.3
36-45	18	51.4
46-55	12	34,3
Gender		
Male	0	0
Female	35	100
Occupation		
Working	12	34.3
Not working	23	65.7
Educational level		
Basic	7	20
Secondary	23	65.7
High	5	14.3

Half of the participants were aged 36-45 years (51.4%), all were women (100%), and most of them were not working (65.7%) and had secondary education (65,7%).

Table 2. Participants' knowledge based on pre-test and post-test (n=35)

Knowledge	Mean	SD	Min-Max.	p
Pre-test	44.0	11.167	-52.120 to -45.023	0.000
Post-test	92.57	8.168		

Table 3. Participants' ability to perform stroke screening (n=35)

Ability	Pre, f(%)	Post, f (%)	p
Poor	31 (88.6)	0	0.000
Fair	4 (11.4)	6 (17.1)	
Good	0	29 (82.9)	

Based on the results of data analysis using the paired t-test shown in Table 2, it shows that there is a significant difference in knowledge scores between the pre-test and post-test. After health education about stroke was carried out, health cadres' knowledge increased compared to before the education was carried out. Meanwhile, Table 3 shows that the majority of cadres' ability to carry out stroke screening is not good (88.6%). After training, most of the cadres' abilities were good (82.9%). The Wilcoxon test results also showed that there was a significant difference in participants before and after training. These results show that there is an increase in cadres' ability to carry out stroke screening after being given training.

b. Discussion

During the activity, participants seemed to pay attention while the material was being provided. Participants seemed enthusiastic when delivering the material, as evidenced by 5 participants asking questions during the discussion session. During the stroke screening training, participants were able to demonstrate one by one how to carry out screening. There were 6 cadres who were still inappropriate in carrying out screening. In general, the implementation of activities ran smoothly on time. The pre-test and post-test results show that knowledge and ability to perform stroke screening increased after this training.

During its implementation, participants were given a pretest to determine the extent of cadres' knowledge regarding the concept of stroke, including definitions, risk factors, causes, signs and symptoms, complications, and the benefits of early detection of stroke. This is in accordance with previous programs carried out to increase the knowledge of training participants by providing education regarding early stroke detection using the FAST method (Amelia et al., 2020; Pomalango, 2022). FAST is a donkey bridge (mnemonic) for recognizing stroke warning signs consisting of: F = face, facial numbness or facial weakness, especially one side; A = arm, arm numbness or arm weakness on one side of the body; S = speech, slurred speech or difficulty speaking and understanding; T = time, it's time to call emergency services if these things happen suddenly or are accompanied by loss of vision, loss of balance accompanied by dizziness or worsening headaches of unknown cause that occur suddenly and are severe (Kleindorfer et al., 2007). In this activity, the method used to detect stroke is "Immediately go to hospital," as in research by Sodikin et al. (2020), which shows increased knowledge in training participants.

Most of the training participants had secondary education and were very good at accepting explanations of material from the presenters. They also listened and were interested in the material provided, as evidenced by several questions asked by the participants. The level of education influences the ability to receive information. The ease of receiving information is essential for the acquisition of new knowledge (Darling-Hammond et al., 2020). The higher the level of cadre education, the easier it will be to receive information, leading to more knowledge and insight (Dhomiri & Mintaroem, 2020). Individuals with higher education are more receptive to information and have a better level of understanding. They are more active in seeking information because their critical thinking has been formed.

All training participants showed a significant increase in knowledge about stroke after training. Training is an act of delivering information through education. The gradual process of storing information started with processing information that entered through sensing and was recorded by the sensory memory (Dhomiri & Mintaroem, 2020). The process of transferring information from short-term memory to long-term memory involves repetition and selection, but not all information stored in long-term memory is stored properly (Kaiser & Schreiber, 2002). Improving knowledge will impact altering individual, family, and community behavior, as well as playing an active role in achieving optimal health degrees (Purwanza & Wahyudi, 2022). Health education in this training plays a role in improving the knowledge and skills of health cadres. This training also emphasizes the golden period of stroke management, which is 4.5 hours after stroke symptoms appear, so as to prevent disability and death from stroke.

Picture 2

5. CONCLUSION

Early stroke detection training for health cadres is one effort to prevent emergencies in stroke patients. The importance of treating stroke during the golden period can minimize the disability caused after the first stroke. It is hoped that the results of this community service activity can optimize the role of health cadres in promotive and preventive health efforts, especially in stroke cases. Additionally, cadres' ability to perform early stroke detection can also prevent recurrent strokes.

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