JIKES: JURNAL ILMU KESEHATAN
Tahun 2026, Volume 5, Nomor 1, Bulan Juli-Desember: hlm 1291-1298
e-ISSN: 2963-069X | URL: https://yptb.org/index.php/jik | e-Mail: jurnalq17@gmail.com

Lisensi: CC-BY
DOI: https://doi.org/10.71456/jik.v5i1.2841

INCREASING PUBLIC KNOWLEDGE ABOUT EARLY DETECTION OF STROKE THROUGH FAST METHOD EDUCATION AT THE TANJUNG MORAWA HEALTH CENTER

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Submit Tgl: 24-September-2026 Diterima Tgl: 25-September-2026 Diterbitkan Tgl: 07-Oktober-2026

Abstrak: Stroke merupakan masalah kesehatan utama yang memerlukan pengenalan gejala secara cepat dan penanganan segera untuk mencegah kecacatan dan kematian. Keterbatasan pengetahuan masyarakat mengenai tanda-tanda awal stroke dapat berkontribusi terhadap keterlambatan dalam mencari pertolongan medis. Salah satu metode sederhana yang dapat digunakan oleh masyarakat untuk mengenali gejala awal stroke adalah FAST (*Face, Arm, Speech, Time*). Kegiatan ini bertujuan untuk meningkatkan pengetahuan masyarakat mengenai deteksi dini stroke melalui edukasi kesehatan berbasis FAST di Puskesmas Tanjung Morawa. Kegiatan menggunakan pendekatan edukasi kesehatan dengan desain *one-group pretest-posttest*. Pengetahuan peserta dinilai sebelum dan sesudah intervensi edukasi menggunakan instrumen penilaian yang sama. Sebanyak 22 peserta menyelesaikan penilaian pretest dan posttest. Hasil menunjukkan bahwa rata-rata skor pengetahuan meningkat dari 45,00 ± 34,74 pada pretest menjadi 85,91 ± 21,30 pada posttest, dengan peningkatan rata-rata sebesar 40,91 poin. Sebanyak 19 peserta mengalami peningkatan skor, sementara tiga peserta tidak mengalami perubahan, dan tidak ada peserta yang mengalami penurunan skor. Uji Wilcoxon menunjukkan adanya perbedaan yang bermakna secara statistik antara skor pretest dan posttest ($p < 0,001$). Proporsi peserta yang memperoleh skor ≥80 meningkat dari 31,8% menjadi 77,3%. Edukasi kesehatan berbasis FAST efektif dalam meningkatkan pengetahuan masyarakat mengenai deteksi dini stroke di Puskesmas Tanjung Morawa. Oleh karena itu, edukasi FAST dapat dipertimbangkan sebagai salah satu strategi promotif dan preventif di fasilitas pelayanan kesehatan primer untuk meningkatkan kesiapsiagaan masyarakat dalam mengenali gejala awal stroke.

Kata Kunci: Stroke, Deteksi Dini, FAST, Edukasi Kesehatan, Pengetahuan Masyarakat.

Abstract: *Stroke is a major health problem that requires rapid recognition of symptoms and immediate treatment to prevent disability and death. Limited public knowledge regarding the early signs of stroke may contribute to delays in seeking medical care. One simple method that can be used by the community to recognize early stroke symptoms is FAST (Face, Arm, Speech, Time). This activity aimed to improve community knowledge regarding early stroke detection through FAST-based health education at Tanjung Morawa Public Health Center. The activity used a health education approach with a one-group pretest-posttest design. Participants' knowledge was assessed before and after the educational intervention using the same assessment instrument. A total of 22 participants completed both pretest and posttest assessments. The results showed that the mean knowledge score increased from 45.00 ± 34.74 at pretest to 85.91 ± 21.30 at posttest, representing a mean increase of 40.91 points. Nineteen participants experienced an improvement in their scores, while three participants showed no change, and no participant experienced a decrease. The Wilcoxon test demonstrated a*

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statistically significant difference between pretest and posttest scores ($p < 0.001$). The proportion of participants achieving a score of ≥80 increased from 31.8% to 77.3%. FAST-based health education was effective in improving community knowledge regarding early stroke detection at Tanjung Morawa Public Health Center. FAST education may therefore be considered as a promotive and preventive strategy in primary healthcare settings to improve community preparedness in recognizing early stroke symptoms.

Keywords: *Stroke, Early Detection, FAST, Health Education, Community Knowledge.*

Cara mengutip Prayugo, D. A. B., Siregar, S. A., Pohan, A. V., Adyatma, O. M., Razade, J. shalom, & Siregar, P. P. (2026). Increasing Public Knowledge about Early Detection of Stroke through FAST Method Education at the Tanjung Morawa Health Center. *JIKES : Jurnal Ilmu Kesehatan*, *5*(1), 1291–1298. https://doi.org/10.71456/jik.v5i1.2841

INTRODUCTION

Stroke is a cerebrovascular disease that can cause sudden neurological disorders and is one of the main causes of death and disability. Stroke conditions require rapid recognition of symptoms and treatment because delays in obtaining medical services can affect patient outcomes. Therefore, the ability of the community to recognize the early signs of stroke is one of the important components in an effort to improve the response to the occurrence of stroke (Meyran et al., 2020).

In Indonesia, stroke is still one of the big health problems. Based on Riskesdas 2018, the prevalence of stroke based on doctor's diagnosis in the population aged ≥15 years reached 10.9%, or estimated at around 2.12 million people. The Ministry of Health also places stroke as one of the priority diseases that require strengthening promotive and preventive efforts (Sari, 2022).

Stroke problems are not only related to the aspect of curative services, but also the ability of people to recognize early symptoms. Low knowledge about the signs and symptoms of stroke can cause a person or family not to immediately realize that the symptoms that appear are emergency conditions. Recent systematic studies suggest that a lack of knowledge about the main clinical manifestations of stroke can lead to delays in diagnosis and the initiation of appropriate treatment (Vatsalis et al., 2025).

One simple method that can be used to help people recognize the early signs of stroke is FAST, namely *Face*, *Arm*, *Speech*, and *Time*. The *Face* component reminds people to pay attention to any changes or weaknesses in the face, *Arm* to recognize weakness or difficulty lifting one of the arms, *Speech* to recognize speech disorders, while *Time* emphasizes the importance of immediately seeking medical attention when symptoms are found (Tsakpounidou et al., 2022).

The FAST method has the advantage of being easy to remember and can be conveyed to the public in the form of simple education. Research on stroke education campaigns shows that educational interventions to the community can improve the recognition of stroke symptoms and readiness to seek medical help. A meta-analysis of stroke education campaigns found a significant improvement in the ability to recognize stroke symptoms after an educational intervention (Tan et al., 2021).

FAST-based education programs have also shown potential in increasing public knowledge. The FAST Heroes study, for example, showed an increase in participants' ability to recognize stroke symptoms after an educational program (Orologa et al., 2024).

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Based on the importance of early recognition of stroke symptoms and the need to increase public knowledge, education about the FAST method was carried out at the Tanjung Morawa Health Center UPT. This activity aims to increase public knowledge about early detection of stroke after being educated using the FAST method.

METHODE

This activity uses a health education approach with *a one group pretest-posttest* design which aims to find out changes in public knowledge about early detection of stroke before and after being educated using the FAST (*Face, Arm, Speech, Time*) method. The activity was carried out at the Tanjung Morawa Health Center by involving 22 participants who participated in the entire series of activities and knowledge measurement before and after education.

The implementation of the activity began with the provision of *a pretest* to determine the initial level of knowledge of participants about the signs and symptoms of stroke. Furthermore, participants were given health education about early detection of stroke using the FAST method. Educational materials include the recognition of stroke signs through *the Face* component, namely changes or weaknesses in the face; *Arm*, which is weakness or difficulty lifting one of the arms; *Speech*, which is a speech disorder or difficulty; and *Time*, which is the importance of seeking medical attention immediately if these signs and symptoms are found. After the delivery of the educational material is completed, participants are given a *posttest* using the same assessment instrument to find out the change in the level of knowledge after receiving education.

Participants' knowledge was assessed using scores ranging from 0–100, with higher scores indicating a better level of knowledge. The data on *the results of the pretest* and *posttest* were then collected and analyzed descriptively by calculating the average value, standard deviation, median, minimum value, and maximum value. Changes in individual scores between before and after education were also analyzed to determine the number of participants who increased, did not change, or decreased scores. Analysis of differences in knowledge scores before and after education was carried out using *the Wilcoxon Signed-Rank* test because the data came from two paired measurements of the same participant. The $p<$ value of 0.05 is used as the limit of statistical meaning.

RESULT

A total of 22 participants participated in knowledge measurement before and after education. The measurement results showed an increase in knowledge after being educated about early detection of stroke using the FAST method.

Table 1. Distribution of participants' knowledge scores before and after education

Parameter	Pretest	Posttest
Number of participants	22	22
Rerata	45,00	85,91
Standard deviation	34,74	21,30
Median	40	95
Lowest score	0	10
Highest score	100	100

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Based on Table 1, the average knowledge score increased from 45.00 in the pretest to 85.91 in the posttest, with an increase of 40.91 points. The median score increased from 40 to 95.

Table 2. Change in participant score after education

Score changes	Quantity	Percentage
Increase	19	86,4%
Unchanged	3	13,6%
Downward	0	0%
Total	**22**	**100%**

A total of 19 participants (86.4%) experienced an increase in scores, while 3 participants (13.6%) did not experience any changes, without any decrease in scores.

Table 4. Wilcoxon Test Results of Knowledge Score Before and After Education

Measurement	Median	Value p
Pretest	40	<0.001
Posttest	95	

DISCUSSION

The results of the activity showed an increase in public knowledge about early detection of stroke after being educated using the FAST method. The average knowledge score increased from 45.00 in the pretest to 85.91 in the posttest, with an increase of 40.91 points. A total of 19 participants (86.4%) experienced an increase in scores and no participants experienced a decrease. The results of the Wilcoxon test showed a significant difference between the knowledge score before and after education ($p < 0.001$). These results show that providing FAST education can increase public knowledge about the early signs of stroke (Orologa et al., 2024).

The increase in knowledge can be explained through the concept of knowledge as a result of the process of sensing and receiving information. Knowledge is one of the important domains in the formation of health behaviors, because a person tends to be more able to make health decisions if they have adequate information about the health problems they are facing. In the context of stroke, knowledge of the signs and symptoms is the basis for people to recognize the condition that occurs and determine the next course of action (Rincón Uribe et al., 2021).

Theoretically, knowledge improvement after education can occur through the learning process when individuals acquire new information, understand the information, and then integrate it with existing knowledge. Health education plays a role as a process of providing information that aims to improve the ability of individuals and groups to maintain and improve health. Thus, providing structured and easy-to-understand material can help increase participants' understanding of a health problem (Rincón Uribe et al., 2021).

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In this activity, the FAST method provides a simple information structure through four main components, namely *Face, Arm, Speech,* and *Time*. The use of such acronyms can help simplify relatively complex clinical information into messages that are easier for people to understand and remember. This concept is in accordance with the principle of health education that the delivery of information to the public needs to be adjusted to the ability of the recipient of information so that the message can be received and understood optimally (Orologa et al., 2024).

The increase in scores in this activity can also be attributed to *the Health Belief Model* (HBM) theory, especially the concepts *of perceived severity* and *perceived benefits*. Knowledge about stroke and its consequences can improve an individual's understanding of the severity of the disease, while information about FAST can provide an understanding of the benefits of recognizing symptoms early. That understanding can be one of the factors that drives individuals to take health measures when they find signs of stroke (Hogge et al., 2024).

In addition, *the Knowledge-Attitude-Practice* theory explains that knowledge is one of the components that can underlie the formation of health attitudes and practices. Although increased knowledge does not necessarily directly result in behavior change, better knowledge is an important early stage in the process of changing health behaviors. In the context of this activity, the increase in knowledge scores after education showed that the intervention had succeeded in improving one of the initial components in community preparedness to face stroke (Kusuma et al., 2021).

The results of this activity are in line with *a systematic review* and *meta-analysis* that shows that stroke education campaigns can improve people's ability to recognize stroke symptoms. The use of acronyms in stroke education is also considered to help people recognize the signs of stroke more simply and increase readiness to respond to these conditions (Hogge et al., 2024).

These results are also supported by research on FAST-based education which shows an increase in public knowledge about the signs, symptoms, and risk factors of stroke after being given educational interventions. The findings show that the FAST method can be an educational approach that can be easily applied in improving public understanding of the early signs of stroke (van der Merwe et al., 2023).

The effectiveness of the FAST approach is also shown through the FAST Heroes program which shows an increase in participants' ability to recognize the main symptoms of stroke after participating in the education program. This approach suggests that delivering information using simple, memorable messages can be an effective strategy in raising public awareness of stroke symptoms (van der Merwe et al., 2023).

The increase in the proportion of participants with a score of ≥80 from 31.8% in the pretest to 77.3% in the posttest further strengthens the change in the level of knowledge. The change shows that education not only increases the overall average score, but also increases the number of participants who achieve a high level of knowledge. Structured health education can help participants gain previously unknown information or improve inaccurate understanding of stroke (van der Merwe et al., 2023).

The considerable score difference between the pretest and posttest also shows that the initial level of knowledge of the participants is still diverse. In the pretest, there are participants with very low scores to participants with a score of 100. This condition shows

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that there is a variation in people's initial knowledge about stroke. After education, most of the participants experienced an increase in scores, although there were three participants who did not experience any changes. The absence of changes in some participants can be influenced by the already high initial score, so there is limited room for improvement. Individual data shows that some participants have obtained high scores on the pretest.

From a learning theory perspective, the use of simple, repetitive methods such as FAST can help the process of storing information in memory. The acronym provides *retrieval cues* or reminder hints so that individuals can more easily recall the information they have received when facing a certain situation. In the context of stroke, the ability to remember *Face, Arm, Speech,* and *Time* can help people associate observed signs with the possibility of stroke and the need to seek immediate help (Salam et al., 2022; Siregar et al., 2023).

The *Time* aspect in the FAST method has a very important role because stroke education not only aims to increase knowledge about symptoms, but also emphasizes the urgency of treatment. Stroke is a condition that requires a quick response, so delays in recognizing symptoms and seeking help can have an impact on patient outcomes. Therefore, education that emphasizes the word *Time* can help change society's understanding from simply "knowing the symptoms" to the awareness that the symptoms require immediate action (Gude et al., 2023).

Although there is a meaningful increase in knowledge, the increase in knowledge scores does not directly indicate a change in people's behavior in dealing with stroke events. Knowledge is one of the factors that can support preparedness, but the decision to seek help immediately can also be influenced by the perception of symptoms, perceived severity, access to health facilities, previous experience, and social and environmental factors (Tan et al., 2021). Therefore, FAST education should not only emphasize the ability to recognize symptoms, but also provide a strong message about the importance of seeking medical attention immediately when Signs of stroke were found (Gude et al., 2023).

The implications of this activity for primary health services are quite important. Puskesmas not only plays a role in curative services, but also has a promotive and preventive function through increasing knowledge and community empowerment. FAST education can be integrated into health counseling activities, posyandu, cadre activities, non-communicable disease programs, and other community activities. The approach is relatively simple so that it can be done repeatedly and reach a wider group of people (Murni et al., 2022; Zhong et al., 2022).

Thus, the results of activities at the Tanjung Morawa Health Center strengthen that education using the FAST method is one of the potential strategies to increase public knowledge about early stroke detection. This increase in knowledge is the first step in building community preparedness. Continuous education accompanied by simulation of the recognition of symptoms and actions to be taken when a stroke occurs can be developed in subsequent activities so that increased knowledge can be more likely to be translated into rapid response behaviors to strokes (Orologa et al., 2024).

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CONCLUSION

Early detection education using the FAST method at the Tanjung Morawa Health Center has been proven to increase public knowledge about the early signs and symptoms of stroke. Education with the FAST method can be one of the promotive and preventive strategies that are simple, easy to understand, and can be applied in health education activities in primary health services.

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