

Culturally-Based Education: FAST Animation Video in the Banjar Language to Increase Family Awareness in Stroke Detection

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ABSTRACT

Stroke is a leading cause of death and disability worldwide, including in Indonesia. Low public awareness in recognizing stroke symptoms is a major factor contributing to delayed treatment. This study aims to analyze the effectiveness of culture-based education using a Banjar-language FAST animation video in improving family knowledge and attitudes toward early stroke detection. The research design used a quasi-experimental method with a pre-test and post-test as well as a control group. The sample consisted of 100 respondents divided into intervention and control groups. The results showed a significant increase in knowledge and attitude scores in the intervention group ($p < 0.05$). This indicates that culture-based education is more effective than conventional education. In conclusion, this approach can serve as a more inclusive health education model for communities with language limitations.

Keywords: Animation Video, Cultural Education, FAST, Stroke

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INTRODUCTION

Stroke is one of the leading causes of death and disability worldwide. According to global data, stroke ranks as the second leading cause of death and the third leading cause of long-term disability (1). Additionally, stroke is a major contributing factor to the development of dementia, depression, and permanent disability (2). In low- and middle-income countries, the incidence of stroke has more than doubled over the past four decades, whereas in high-income countries, it has decreased by 42%. Indonesia is among the countries with a high stroke incidence rate, with a prevalence of 10.9 per thousand in 2023, and South Kalimantan Province recorded the highest incidence rate (3).

One of the main contributing factors to the high incidence of stroke is

hypertension, a modifiable risk factor. Banjar Regency reported hypertension as the most prevalent non-communicable disease, with a prevalence rate of 35.4% and 26,675 recorded cases (4). Uncontrolled hypertension significantly increases the risk of stroke, particularly in areas with limited access to healthcare services. Delays in recognizing early stroke symptoms are often a major barrier to optimal treatment, as many patients do not realize that the symptoms they experience are warning signs of stroke (5).

A key strategy to reduce stroke-related mortality and morbidity is early detection and prompt treatment. The FAST (Face, Arm, Speech, Time) concept has been widely promoted to increase public awareness of early stroke symptoms and encourage individuals to seek immediate medical

help. However, studies have shown that many people still lack understanding of this concept, especially in areas with limited access to information. Implementing culturally based education has proven to be a more effective approach for raising awareness about stroke, particularly in communities with strong local languages and cultural values.

Health education delivered through audiovisual media has been shown to be more effective than conventional methods such as lectures or printed leaflets. Animation videos, as educational tools, offer advantages in capturing attention, enhancing understanding, and simplifying the delivery of health information. Previous studies have demonstrated that audiovisual media can improve individuals' knowledge and attitudes toward disease prevention. Furthermore, using local languages in educational media can increase community engagement, as the content becomes more accessible and culturally relevant. The development of culturally based health education continues to advance in response to the need for contextual and locally appropriate approaches. One innovation in this field is the use of educational media, such as animation videos, tailored to local language and culture to enhance the effectiveness of health communication (6).

To date, educational approaches to stroke through the FAST (Face, Arms, Speech, Time) campaign have proven effective in raising early public awareness of stroke symptoms. However, most interventions have yet to fully accommodate the cultural and linguistic aspects of local communities. In the context of the Banjar community,

which has distinct linguistic and cultural characteristics, the use of Banjar-language animation videos as a culturally based educational tool is expected to serve as an innovative solution to bridge information gaps and improve family awareness of early stroke detection. Therefore, this study aims to integrate local cultural approaches into visually engaging, easy-to-understand, and technology-based health promotion strategies that can significantly enhance health literacy in the Banjar community (6).

This study aims to analyze the effect of early stroke detection education using animation videos based on the FAST concept in the Banjar language on improving the knowledge and attitudes of families with members suffering from hypertension. Through this approach, it is expected that family awareness of early stroke symptoms will increase, enabling faster and more appropriate treatment, and ultimately reducing mortality and disability rates due to stroke in the local community.

METHODS

This study employed a quasi-experimental design with a pre-test and post-test approach, including a control group for comparison (7). The research was conducted in Village X, Banjar Regency, South Kalimantan Province, from August 2023 to February 2024.

This study involved 100 respondents who were family members of individuals at risk for stroke, specifically those with hypertension. The respondents were divided into two groups: an intervention group and a control group, each consisting of 50 participants. Group assignment was carried out without randomization (8). The sampling technique used was non-

probability sampling with purposive sampling. Inclusion criteria included families of individuals with hypertension, ownership of a smartphone, membership in a WhatsApp group, and the absence of hearing and vision impairments. Exclusion criteria included individuals with hypertension who had previously experienced a stroke.

Data were collected using various instruments, including a culturally based 10-minute educational animation video on early stroke detection using the FAST method delivered in the Banjar language. The development process of the Banjar-language FAST animation video involved several stages: the creation of an educational script based on FAST principles (Face, Arm, Speech, Time), translation into Banjar by a local language expert, and content review by a healthcare team to ensure medical accuracy. The video was produced by a multimedia team from the Faculty of Medicine and Health Sciences, Lambung Mangkurat University, in collaboration with IT experts and local animators. The narration was delivered by a native Banjar speaker to enhance authenticity and linguistic relatability for the target community. The entire video content was supervised by community nursing lecturers and general practitioners with experience in non-communicable disease education. Other instruments used included leaflets, stationery, and standardized questionnaires on knowledge and attitudes.

Data were collected using two standardized questionnaires: a knowledge questionnaire and an attitude questionnaire regarding early stroke detection based on the FAST method. The knowledge questionnaire was structured using the Guttman scale, consisting of true/false statements about stroke signs, symptoms, and appropriate emergency actions. The validity of the

knowledge questionnaire was indicated by item-total correlation values ranging from 0.678 to 0.934, and its internal reliability was very high, with a Cronbach's Alpha of 0.96, indicating excellent internal consistency. Meanwhile, the attitude questionnaire used a 4-point Likert scale (strongly agree to strongly disagree) to measure family perceptions, beliefs, and readiness for early stroke detection. This questionnaire had item-total correlation values ranging from 0.781 to 0.821 and a Cronbach's Alpha of 0.81, demonstrating good reliability. These instruments were adapted from a previous study by Zulkifli (2022) titled "The Effect of FAST Education on Family Knowledge and Attitudes in Early Stroke Detection in the Working Area of Teluk Kabung Inpatient Health Center," which had been proven valid and reliable in the context of community health education (9).

The intervention lasted for seven days, during which the intervention group was asked to watch the animation video twice daily. Evaluation was conducted through a WhatsApp group and daily monitoring sheets. These sheets were designed to track daily engagement of intervention group respondents during the seven-day intervention period. Each respondent was asked to record the date, time of video viewing (recommended twice daily), and duration as indicators of active participation. Additionally, a section was provided for respondents to assess their understanding of the video content, mark whether the material was easy to understand, and provide notes on any confusion or questions. Respondents were also asked to rate the video's usefulness and relevance to their needs. To ensure data validity, each daily entry in the monitoring sheet was signed or initialed by the respondent. These sheets were collected either digitally via WhatsApp or directly by local health

Table 1. Characteristics in the Study of Culturally-Based Education: FAST Animation Video in the Banjar Language to Increase Family Awareness in Stroke Detection (n = 100)

No.	Characteristics	Intervention Group (n = 50)		Control Group (n = 50)	
		N	%	N	%
1	Age Category				
	Adult	49	96	50	100
	Late Adolescence	1	4	0	0
	Total	50	100	50	100
2	Gender				
	Male	1	4	4	14
	Female	49	96	46	86
	Total	50	100	50	100
3	Education Level				
	Elementary, Junior and Senior High School	47	92	53	72
	Higher Education	3	8	7	28
	Total	50	100	50	100
4	Employment Status				
	Unemployed	46	14	41	64
	Employed	4	86	9	36
	Total	50	100	50	100
5	Marital Status				
	Unmarried	4	86	8	12
	Married	46	14	42	48
	Total	50	50	100	50

cadres. Meanwhile, the control group received standard education via printed leaflets.

The control group received standard educational materials in the form of leaflets, which were distributed directly by the researchers or local health cadres. A brief face-to-face session lasting 15–20 minutes was conducted at the beginning of the intervention to explain the leaflet content to ensure the educational message was conveyed uniformly. The explanation was delivered in simple Indonesian and adjusted to the community's level of understanding. This session aimed to ensure the control group respondents comprehended the leaflet content and to prevent information bias between the two groups due to differences in delivery methods. The collected data were analyzed using paired sample t-tests to

evaluate differences before and after the intervention (8)

RESULTS AND DISCUSSION

Table 1 presents the characteristics of respondents in the study on culturally-based education through a Banjar-language FAST animation video to enhance family awareness in stroke detection. Among the 100 respondents, divided equally into intervention and control groups (50 each), the majority were in the adult age category (96% in the intervention group and 100% in the control group), with only 4% of late adolescents represented in the intervention group.

In terms of gender, the intervention group was predominantly female (96%) compared to male (4%), while the control group had a slightly higher

Table 2. Differences in Family Knowledge Scores Before and After the Intervention in the Intervention and Control Groups (n = 100).

No.	Knowledge Score	Mean	SD
Intervention Group			
1	Before Intervention (Pre-test)	64,13	17,05
	After Intervention (Post-test)	76,09	12,38
Control Group			
2	Before Intervention (Pre-test)	59,29	16,95
	After Intervention (Post-test)	68,61	15,25

proportion of males (14%) and 86% females. Regarding education level, most respondents had completed elementary to high school education (92% in the intervention group and 72% in the control group), while a higher percentage of those with higher education were found in the control group (28%) compared to the intervention group (8%).

In terms of employment status, more respondents in the intervention group were unemployed (86%) than in the control group (64%), while those who were employed were more prevalent in the control group (36%) compared to the intervention group (14%).

Marital status data showed that the majority of respondents in both groups were married, with a slightly higher proportion in the control group (48%) than in the intervention group (42%). However, a notably higher number of unmarried individuals were found in the intervention group (86%) compared to the control group (12%). These findings indicate that although the two groups share relatively balanced characteristics, significant differences in gender distribution, educational attainment, and employment status may influence the effectiveness of this culturally-based educational intervention.

Table 2 presents the differences in family knowledge scores before and after the intervention in both the intervention and control groups. In the

intervention group, the average knowledge score before the intervention (pre-test) was 64.13 with a standard deviation (SD) of 17.05, which increased to 76.09 with an SD of 12.38 after the intervention (post-test). This increase indicates that the culturally-based education using the Banjar language FAST animation video was effective in enhancing family knowledge about stroke detection.

Meanwhile, in the control group, which did not receive the same intervention, the pre-test knowledge score was lower at 59.29 with an SD of 16.95, and it increased to 68.61 with an SD of 15.25 in the post-test. Although both groups experienced an increase in scores, the improvement was more significant in the intervention group compared to the control group. This suggests that the culturally-based educational method applied in this study was more effective than conventional education or the absence of specific interventions. The lower standard deviation in the post-test of the intervention group also indicates a more consistent level of understanding among participants after receiving the intervention.

Table 3 presents the differences in family attitude scores before and after the intervention in both the intervention and control groups. In the intervention group, the average attitude score before the intervention (pre-test) was 77.00 with a standard deviation (SD) of 7.29, which increased to 85.77 with an SD of

Table 3. Differences in Family Attitude Scores Before and After the Intervention in the Intervention and Control Groups (n = 100).

No.	Knowledge Scores	Mean	SD
Intervention Group			
1	Before Intervention (Pre-test)	77,00	7,29
	After Intervention (Post-test)	85,77	7,86
Control Group			
2	Before Intervention (Pre-test)	80,29	7,59
	After Intervention (Post-test)	87,73	8,07

Table 4. Comparative Analysis of the Mean Scores of Family Knowledge and Attitudes in the Control and Intervention Groups Before and After the Intervention.

No.	Variable and Group		CI 95% Lower-Upper	T	p-value
1	Knowledge Score	Before	18,497	5,558	0,000
	Intervention Group	After	7,425		
2	Knowledge Score	Before	15,748	4,544	0,001
	Control Group	After	4,892		
3	Attitude Score	Before	12,345	7,998	0,000
	Intervention Group	After	7,177		
4	Attitude Score	Before	11,773	5,609	0,000
	Control Group	After	5,109		

7.86 after the intervention (post-test). This improvement indicates that the culturally-based education using the Banjar language FAST animation video contributed to positive changes in family attitudes toward stroke detection.

Meanwhile, in the control group, the pre-test attitude score was higher than in the intervention group, at 80.29 with an SD of 7.59, and increased to 87.73 with an SD of 8.07 in the post-test. Although both groups experienced an increase in attitude scores after the intervention, the intervention group showed a relatively significant improvement, suggesting that the educational method used was effective in fostering positive family attitudes toward stroke detection. The relatively small differences in standard deviations between the pre-test and post-test in both groups indicate that the distribution of attitude changes was relatively even within each group. These findings reinforce the conclusion that culturally-based education has a positive

impact on increasing family awareness of stroke warning signs.

Table 4 presents the results of paired t-test analysis comparing the mean scores of family knowledge and attitudes in the intervention and control groups before and after the intervention. In the intervention group, the knowledge score showed a t-value of 5.558 with a p-value of 0.000, indicating a significant difference between the pre-test and post-test scores, with a 95% confidence interval ranging from 18.497 to 7.425. This suggests that the culturally-based education using the Banjar-language FAST animation video significantly improved family knowledge in stroke detection.

In the control group, the knowledge score also increased, with a t-value of 4.544 and a p-value of 0.001, indicating a statistically significant change, although the improvement was not as substantial as in the intervention group,

with a 95% confidence interval of 15.748 to 4.892.

Regarding attitude scores, the intervention group showed a significant improvement, with a t-value of 7.998 and a p-value of 0.000, and a 95% confidence interval ranging from 12.345 to 7.177. This demonstrates that the educational intervention meaningfully enhanced family attitudes in recognizing stroke symptoms. In the control group, the attitude score also increased significantly, with a t-value of 5.609 and a p-value of 0.000, although the increase was not as pronounced as in the intervention group.

These findings indicate that culturally-based education is more effective in improving both knowledge and attitudes among families compared to conventional education or no specific intervention. The statistically significant p-values across all categories reinforce that the observed changes were not due to chance, but rather due to the intervention provided.

This study aimed to evaluate the effectiveness of culturally-based education through a Banjar-language FAST animation video in increasing family awareness of stroke detection. The findings revealed a significant improvement in both knowledge and attitude scores in the intervention group compared to the control group. This indicates that delivering health information in the local language can enhance public understanding and awareness more effectively. These findings align with previous studies stating that communication in one's native language is more easily received and understood by the community compared to national or foreign languages (5,10).

This research addresses the need for a contextual and inclusive educational approach in stroke prevention efforts, particularly in communities with limited proficiency in the national language, such as the Banjar people. The core of this study lies in the relationship between low health literacy, delays in recognizing stroke symptoms, and the importance of culturally-based approaches to enhance the effectiveness of health education. By combining visual education through animation and the use of local language, this intervention significantly improved families' knowledge and attitudes in identifying early symptoms of stroke—a key to reducing the risk of disability and death.

In the context of nursing, this study contributes to strengthening the role of nurses in preventive actions. Health education is one of the main functions of community nursing, and this culturally-based approach can serve as an educational strategy that nurses may implement in their practice areas. Nurses can act as facilitators in delivering information through media that resonates with the daily lives of the community, ensuring that health messages are effectively conveyed and well-received. Furthermore, this educational model holds potential for broader application in other health promotion programs, such as the early detection of non-communicable diseases, thus reinforcing the preventive system in primary healthcare services. This study highlights the importance of innovation and cultural sensitivity in nursing practice to enhance the reach and effectiveness of public health interventions.

The characteristics of the respondents in this study show that the majority were women with a lower to middle level of education. This is an important consideration, as lower health literacy often poses a barrier to the acceptance of

medical information. However, the findings demonstrate that the use of Banjar-language animation videos successfully enhanced respondents' understanding, particularly among those with lower education levels. This is supported by studies indicating that interactive visual media in local languages can increase public engagement in comprehending health information (11,12).

The difference in knowledge scores before and after the intervention showed that the intervention group experienced a greater increase compared to the control group. The significant p-value ($p < 0.05$) in the paired t-test indicates that this culturally-based education had a statistically significant effect in improving family understanding of stroke symptoms. The effectiveness of this method may also be linked to the cultural characteristics of the Banjar people, who tend to better absorb information when it is delivered in their native language, as it is more relatable and easier to comprehend (13,14).

In addition to increased knowledge, family attitudes toward stroke detection also showed significant improvement in the intervention group. The increased attitude scores suggest that culturally-based education not only enhances conceptual understanding but also encourages more proactive behavior in recognizing stroke symptoms. This aligns with the Theory of Planned Behavior, which posits that strong understanding increases an individual's confidence in taking appropriate actions (15). Thus, the use of culturally-based education can be an effective strategy for improving public health awareness (6,16).

This study also showed that the level of effectiveness of culturally-based education was higher than that of

conventional education. This is evident from the significantly greater increases in knowledge and attitude scores in the intervention group. The difference indicates that in the context of public health, culturally-based approaches can bridge the communication gap between healthcare providers and the community. A study by Tjandrasa (2024) also found that culturally-based education improves health understanding in communities with limited access to information (17,18).

Based on these findings, it can be concluded that culturally-based education using Banjar-language animation videos is highly effective in increasing family awareness of stroke detection. Therefore, similar approaches can be applied in other health education efforts, especially for communities with limited understanding of the national language. Recommendations for future research include examining the long-term effects of this educational approach and exploring its effectiveness across broader populations.

LIMITATIONS

This study evaluated the effectiveness of culturally-based education using a Banjar-language FAST animation video in increasing family awareness of stroke detection. The results showed a significant improvement in knowledge and attitudes among families in the intervention group compared to the control group, confirming that a culturally-based approach is more effective in delivering health information. The cultural characteristics of the Banjar ethnic group, who tend to better understand information delivered in their local language, also contributed to the effectiveness of this method.

However, this study has several limitations. These include the use of

non-probability sampling, which may affect the generalizability of the findings; a relatively short intervention duration; and the use of WhatsApp as a monitoring tool, which may not be optimal for respondents with limited digital access. Additionally, the study was conducted in a single community, so its effectiveness in other regions remains to be further investigated.

RESEARCH ETHIC

This study was conducted in accordance with ethical research principles, including respect for the rights of research subjects, the principle of justice, and the principle of beneficence. All respondents involved were provided with clear information regarding the objectives, benefits, and potential risks of the study. Participation was entirely voluntary, with written consent obtained through an informed consent process. In addition, confidentiality and privacy of respondents were strictly maintained, and all data collected were used solely for the purposes of this research. The research ethics approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences, Lambung Mangkurat University, under ethical approval number x4x/KEPKFKIKULM/EC/IV/2023.

CONFLICT OF INTEREST

The researchers declare that there are no conflicts of interest in this study, whether in the form of academic affiliation, financial interests, or personal relationships that could influence the study's outcomes and interpretations. All research activities were conducted independently and objectively based on the predetermined scientific methodology. If there were any sponsorships or external support, such contributions did not influence the

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CONCLUSION

This study demonstrates that culturally-based education using a Banjar-language FAST animation video is effective in increasing family awareness of stroke detection. Given the significant improvements in knowledge and attitudes, this approach can serve as a model for other culturally-based health education programs. Despite several limitations, these findings provide valuable insights for the development of more inclusive and community-based health communication strategies. Further research with a broader scope and long-term evaluation is recommended to explore the effectiveness of culturally-based education across various contexts and regions.

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