

THE EFFECT OF HEALTH EDUCATION USING AUDIOVISUAL METHOD ON FAMILY ATTITUDES TOWARD EARLY MANAGEMENT OF STROKE SYMPTOMS

Ainista Aviakum, Moch. Achwandi, Binarti Dwi W.

Bina Sehat PPNI University, Mojokerto, Indonesia

Corresponding Author: ainista1201@gmail.com

ABSTRACT

Inappropriate family attitudes regarding the initial management of stroke symptoms can increase the risk of disability and death; thus, families play a crucial role as first responders before patients receive professional medical care. This issue was observed in Ngingas Hamlet, necessitating effective education. This study aimed to analyze the impact of audiovisual health education on family attitudes toward initial stroke symptom management, using a quasi-experimental, one-group pre-test/post-test design with total sampling. Data were collected using an 8-item Likert-scale questionnaire before and after the education session, then analyzed using the Wilcoxon Signed-Rank Test. Results showed an increase in positive attitudes from 17 respondents (42.5%) to 31 respondents (77.5%), with $Z = -3.300$, $p = 0.001$, and an effect size of $r = 0.52$ (large effect). Audiovisual media proved effective in improving family attitudes and is recommended as a health promotion tool for stroke emergency preparedness.

Keywords : *health education, audiovisual media, family attitude, stroke*

INTRODUCTION

A stroke is a neurological emergency that occurs suddenly due to interrupted blood flow to the brain, causing brain cells to suffer from oxygen deprivation and potentially die within a short period (Rosmary & Handayani, 2020). The success of stroke management is largely determined by the speed of response from the moment symptoms first appear, known as the golden period, which is the first 3–4,5 hours after the onset of the attack (Ambarika & Anggraini, 2022). During this phase, the family's role becomes crucial, as they are typically the first ones present with the patient when the attack occurs. However, particularly in rural areas, many families still lack appropriate attitudes toward initial stroke management due to limited knowledge of stroke signs and symptoms, as well as persistent belief in traditional treatments such as massaging the affected body parts, which can actually worsen the patient's condition (Yuswantoro et al., 2025).

This situation is also observed in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency, where some families still choose to wait and monitor the patient's condition before seeking medical care; some even resort to massaging the affected body parts, attributing the symptoms to mere fatigue (Adi Sulistyo Wibowo, 2025). Globally, the WHO identifies stroke as the third leading cause of disability and death, with approximately 93.8 million cases; nationally, stroke ranks highest as a cause of both disability (11.2%) and death (18.5%) in Indonesia, with a prevalence of 8.3 per 1,000 population (Kemenkes, 2024). The number of stroke patients visiting hospitals in Mojokerto has also steadily increased, rising from 418 patients in 2019 to 932 patients in 2022 (Haryanto & Fauziah, 2025).

A preliminary study involving 10 family members aged 30–60 in Ngingas Hamlet revealed varied attitudes: three individuals demonstrated a positive attitude, four did not yet

hold a fully positive attitude, and three exhibited a negative attitude by choosing to massage the affected body part rather than immediately taking the patient to a healthcare facility. Research by (Aswaty et al., 2024), indicates that health education using audiovisual media effectively improves family knowledge regarding stroke management, while (Utami et al., 2022) report that audiovisual media focused on early stroke detection significantly enhances both family knowledge and attitudes. Audiovisual media combine visual and auditory elements that simultaneously stimulate the senses of sight and hearing, thereby fostering focus, attention, and memory retention regarding the presented material; this ultimately drives a shift in family attitudes from negative to positive (Basit & Lathifah, 2021).

Based on the foregoing, this study aims to analyze the effect of health education using audiovisual methods on family attitudes regarding the initial management of stroke symptoms in Ngingas Hamlet.

METHOD

This study employed a quantitative approach with a quasi-experimental design using a one-group pretest-posttest design, a research design that measures variables before and after the intervention without using a control group (Anantasia & Rindrayani, 2023). The population consisted of all families aged 30–60 years with a family member having a history of stroke or stroke risk factors in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency, totaling 40 heads of household. The sampling technique used was total sampling, a technique involving all members of the population who meet the inclusion criteria as the research sample (Firdaus et al., 2023), resulting in a sample of 40 respondents.

The research instrument was a Likert-scale attitude questionnaire consisting of 8 statement items regarding the initial management of stroke symptoms, accompanied by audiovisual educational media in the form of a learning video covering the definition, signs and symptoms, and initial management of stroke. The instrument's validity was tested using Pearson Product Moment correlation, with calculated r values ranging from 0.591–0.786, exceeding the r table value (0.444), while reliability was tested using Cronbach's Alpha, yielding a result of 0.910, indicating that the instrument was valid and reliable. Data were collected by administering the questionnaire before (pretest) and after (posttest) the audiovisual education. The collected data were then processed through editing, coding, scoring, and tabulating stages, followed by analysis using the non-parametric Wilcoxon Signed Rank Test with the assistance of SPSS software to determine the effect of audiovisual health education on family attitudes.

FINDING AND DISCUSSION

RESEARCH RESULT

This study was conducted on 40 families with members who had a history of stroke or stroke risk factors in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency.

1. General information

a. Characteristics of responden based on gender

Tabel 4. 1 Frequency Distribution of Respondents by Gender in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency

No	Jenis kelamin	Frekuensi	Persentase
1	Laki-laki	13	35%
2	Perempuan	26	65%
	Total	40	100%

Based on Table 4.1 above, the data show that the majority of respondents are female (26 individuals, or 65%), while nearly half are male (14 individuals, or 35%).

b. Respondent characteristics based on age

Tabel 4. 2 Frequency Distribution of Respondents by Age in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency

No	Usia	Frekuensi	Persentase
1	30-37 tahun	26	65%
2	38-45 tahun	5	12,5%
3	46-53 tahun	6	15%
4	54-60 tahun	3	7,5%
	Total	40	100%

Based on Table 4.2 above, the data show that the majority of respondents were aged 30–37 years (26 individuals, or 65%), while a small proportion were aged 54–60 years (3 individuals, or 7.5%).

c. Characteristics of respondents based on highest level of education

Tabel 4. 3 Frequency Distribution of Respondents by Education Level in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency

No	Pendidikan	Frekuensi	Persentase
1	SD	3	7,5%
2	SMP	7	17,5%
3	SMA	21	53,5%
4	Perguruan Tinggi	9	22,5%
	Total	40	100%

Based on Table 4.3 above, the data shows that the majority of respondents have a high school education (21 individuals or 52.5%), while a small minority have an elementary school education (3 individuals or 7.5%).

- d. Characteristics of respondents based on relationship to the patient

Tabel 4.4 Frequency Distribution of Respondents Based on Relationship to the Patient in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency

No	Hubungan dengan pasien	Frekuensi	persentase
1	Suami/Istri	11	27,5%
2	Anak	16	40%
3	Orangtua	5	12,5%
4	Saudara	8	20%
	Total	40	100%

Based on Table 4.4 above, the data show that nearly half of the respondents (16 individuals, or 40%) were the patients' children, whereas a small proportion (5 individuals, or 12.5%) were the patients' parents.

2. Specific data

- a. Family attitudes regarding the initial management of stroke symptoms prior to the provision of health education using the audiovisual method.

Table 4.5 Frequency Distribution Based on Family Attitudes Regarding Initial Management of Stroke Symptoms Prior to Health Education Using the Audiovisual Method

No	Skor Pretest sikap keluarga	Frekuensi	Persentase
1	Negatif	23	57,5%
2	Positif	17	42,5%
	Total	40	100%

Based on Table 4.5 above, the data show that the majority of respondents (23 individuals or 57.5%) reported negative family attitudes, whereas nearly half (17 individuals or 42.5%) reported positive family attitudes

- b. Family attitude regarding the initial management of stroke symptoms after receiving health education using the audiovisual method.

Table 4.6 Frequency Distribution Based on Family Attitudes Regarding the Initial Management of Stroke Symptoms After Receiving Health Education via the Audiovisual Method

No	Skor posttest sikap keluarga	Frekuensi	Persentase
1	Negatif	9	22,5%
2	Positif	31	77,5%
	Total	40	100%

Based on Table 4.6 above, the data show that the majority of respondents (31 individuals or 77.5%) reported a positive family attitude, whereas a small minority (9 individuals or 22.5%) reported a negative family attitude.

- c. Family attitude regarding the initial management of stroke symptoms before and after receiving health education using the audiovisual method

Table 4.7 Frequency Distribution Based on Family Attitudes Regarding Initial Management of Stroke Symptoms Before and After Health Education Using the Audiovisual Method

No	Sikap	Pretest	percentase	posttest	percentase	P Value
1	Negatif	23	57,5%	9	22,5%	0,001
2	Positif	17	42,5%	31	77,5%	
	Total	40	100%	40	100%	

Based on Table 4.7 above, the results indicate that, prior to the provision of health education using the audiovisual method, the majority of families (23 respondents or 57.5%) fell into the negative category regarding their attitude toward the initial management of stroke symptoms. Following the health education intervention using the audiovisual method, almost all respondents showed an improvement in attitude to the positive category, with 31 respondents (77.5%) falling into this group ($p = 0.001$).

Table 4.8 Wilcoxon Test Analysis of Family Attitudes Regarding Initial Management of Stroke Symptoms Before and After Health Education Using Audiovisual Methods

Ranks				
		N	Mean Rank	Sum of Ranks
Skor Posttest sikap keluarga - Skor Pretest sikap keluarga	Negative Ranks	2 ^a	9.50	19.00
	Positive Ranks	16 ^b	9.50	152.00
	Ties	22 ^c		
	Total	40		
a. Skor Posttest sikap keluarga < Skor Pretest sikap keluarga				
b. Skor Posttest sikap keluarga > Skor Pretest sikap keluarga				
c. Skor Posttest sikap keluarga = Skor Pretest sikap keluarga				

Test Statistics^a

	Skor Posttest Sikap Keluarga - Skor Pretest Sikap Keluarga
Z	-3.300 ^b
Asymp. Sig. (2-tailed)	.001

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Based on Table 4.8, the Wilcoxon Signed Rank Test obtained a significant value of $0.001 < \alpha 0.05$, which means there is a significant difference in family attitudes before and after being given health education with audiovisual methods in the initial handling of stroke symptoms. The calculated Z value of $3.300 > Z$ table 1.96 with $\alpha 0.05$ so that H_0 is rejected and H_1 is accepted, which means health education with audiovisual methods is effective on family attitudes in the initial handling of stroke symptoms in Ngingas Hamlet. In addition to the significance value, the effect size

was also calculated using the formula $r = Z / \sqrt{N}$, namely $3.300 / \sqrt{40} = 0.52$. Referring to Cohen's classification (1988), these results indicate that health education interventions through audiovisual media not only show statistical significance, but also provide meaningful practical impacts on the formation of family attitudes.

DISCUSSION

Family attitudes toward the initial management of stroke symptoms prior to receiving health education via the audiovisual method.

Based on Table 4.5, among the 40 family respondents in Ngingas Hamlet, prior to receiving health education via audiovisual media regarding the initial management of stroke symptoms, the majority (23 individuals, 57.5%) held a negative attitude, while the remainder (17 individuals, 42.5%) held a positive one; this indicates that the majority of families were not yet attitudinally prepared to handle stroke emergencies. This prevalence of negative attitudes is thought to be linked to the respondents' educational levels, as those with only a basic education tend to face greater difficulty in independently accessing and processing health information, preventing the optimal formation of a positive attitude prior to the provision of education.

In addition to educational factors, these limitations result in respondents having minimal experience and information regarding initial stroke management, leading to a predominance of negative attitudes. This aligns with research (Mardin, 2026) This study found that most families of stroke patients had insufficient knowledge before being given audiovisual education, with none falling into the good category. According to the Health Belief Model (HBM) perspective, families who have not received formal education tend to have low self-efficacy, meaning they are less confident in their ability to recognize symptoms and provide first aid for stroke. This low self-confidence then contributes to the formation of an attitude that is not yet prepared and tends to be negative when facing emergency conditions (Mardin, 2026).

The researchers argue that the dominance of negative attitudes at the pretest stage is related to the characteristics of the respondents, namely that most had a high school education (21 people, 52.5%) and were the patient's parents (16 people, 40%). A secondary education level tends to give families limited access to specific knowledge about the early detection of stroke symptoms, so the knowledge foundation for forming a positive attitude was not yet strong. In addition, families who had never been exposed to information through engaging and easily understood media, such as audiovisual media, tend to have low self-confidence, making them less prepared to face stroke emergency conditions in their family members. Therefore, targeted health promotion interventions are considered important to encourage a change in attitude toward a better direction.

Family attitudes toward the initial management of stroke symptoms after health education using the audiovisual method

Based on Table 4.6, of the 40 family respondents in Ngingas Hamlet, after being given health education through audiovisual media regarding the initial management of stroke symptoms, the majority of respondents (31 people, 77.5%) showed a positive attitude, while the remaining 9 respondents (22.5%) still had a negative attitude. This finding indicates a

fairly substantial shift in the proportion of attitudes, from negative dominance toward positive, after respondents received the intervention.

This improvement in family attitudes after being given audiovisual education is in line with research (Utami et al., 2022) which found that good family attitudes increased from 65.8% at pretest to 100% at posttest after the provision of audiovisual early detection of stroke using the "SEGERA KE RS" (Go to the Hospital Immediately) method ($p = 0.000$). This makes sense because audiovisual media optimizes the sense of sight as the dominant pathway for information absorption, so health messages are understood more quickly compared to conventional lecture methods. This improvement is also in line with Nola Pender's Health Promotion Model, which emphasizes that nursing interventions that shape an individual's cognitive perception can encourage their motivation to engage in health-promoting behavior in order to improve their health status.

The researchers argue that the increase in positive attitudes post-intervention occurred because the combination of moving images and sound was able to enhance respondents' cognitive understanding of the importance of early stroke management. Information presented audiovisually is more realistic and easier to understand compared to verbal delivery or print media, so families who were previously doubtful became more confident and tended to act appropriately, for example by immediately bringing the patient to a health facility once early stroke symptoms were recognized.

Nevertheless, there were still 9 respondents with negative attitudes, which are suspected to be influenced by other factors outside of the education, such as long-standing beliefs or habits that are difficult to change with only a single session of education. This is supported by the characteristics of the respondents, where negative attitudes were more commonly found among males, the 46-53 year age group, and respondents who were the patient's parents. The researchers assume that this group has long-established health beliefs and habits, so it requires more intensive time and repetition of education to change attitudes, compared to younger respondents or females, who tend to be more open to new health information.

The Effect of Health Education Using the Audiovisual Method on Family Attitudes Toward the Initial Management of Stroke Symptoms

Based on Tables 4.7 and 4.8, the results of the Wilcoxon Signed Rank Test showed a significance value of $0.001 < \alpha (0.05)$, with a calculated Z value of 3.300 greater than the Z table value of 1.96, so H_0 was rejected and H_1 was accepted. This means there was a significant difference between family attitudes before and after being given health education with audiovisual media, marked by an increase in the proportion of positive attitudes from 17 respondents (42.5%) to 31 respondents (77.5%), with an effect size of $r = 0.52$, which is categorized as large according to Cohen's criteria (1988). This significant improvement in attitude is related to the characteristics of the respondents, most of whom were female (26 people, 65%), of productive age 30–37 years (26 people, 65%), had a high school education (21 people, 52.5%), and were the patient's children (16 people, 40%)

Female respondents of productive age generally serve as the primary caregivers within the family and are more open to new health information, while the secondary education level held by the majority of respondents was adequate enough to absorb health information when delivered through concrete media such as educational videos, so that the

educational limitations that previously served as a factor in negative attitudes could be overcome, and audiovisual-based health education proved effective in improving family attitudes toward the initial management of stroke symptoms in Ngingas Hamlet, both statistically and practically. This finding is in line with research (Aswaty et al., 2024) which found a significant effect of the video-based "SeGeRa Ke RS" (Go to the Hospital Immediately) education method on understanding of pre-hospital stroke management ($p = 0.001$), and is also consistent with Edgar Dale's Cone of Experience, which states that audiovisual media stimulates the senses of sight and hearing simultaneously, so that information retention and comprehension are more optimal compared to print media or single-mode visual media. According to (Siti Na'imah, 2025), attitude change is formed through three interrelated domains: cognitive (beliefs/perceptions), which was shown to improve through audiovisual media as in the discharge planning study of families of post-stroke patients, where knowledge scores increased from 16.35 to 19.87 (Siti Na'imah, 2025); affective (emotion), where audiovisual education also influenced family attitudes toward stroke management (Ni et al., 2025) and is consistent with findings on educational media's effect on the attitudes of elderly people with chronic conditions (Kusumadani et al., 2026); and conative (tendency to act), which was demonstrated through a significant increase in family readiness to care for post-stroke patients in the intervention group (from 24.73 to 43.22) compared to the control group (24.73 to 27.70; $p = 0.003$), thereby confirming that improvements in knowledge and attitude through audiovisual media extend to actual readiness to act, such as bringing the patient to the hospital when stroke symptoms reappear.

According to the researchers, the improvement in family attitudes after the intervention cannot be separated from the advantages of audiovisual media, which combines elements of sound and image, so that families not only heard the explanation but also directly saw each stage of the initial management of stroke symptoms, making them more focused and better able to understand things that are difficult to describe verbally alone, such as how to recognize the signs of stroke and the quick steps to take before bringing the patient to a health facility. This is supported by the characteristics of the respondents, most of whom were female (65%) and were the patient's children (40%), who generally play an active role in daily care and thus have high motivation to absorb health information. The dominance of the productive age group (30–37 years) also supported their capacity to grasp the educational material, while the secondary (high school) education level was not a significant obstacle, since delivery through moving images and sound does not require a high level of literacy. Thus, audiovisual-based health education has proven effective in improving family attitudes in Ngingas Hamlet regarding the initial management of stroke symptoms, particularly among respondent groups with characteristics such as those in this study.

CONCLUSION

Based on the results of the study on the Effect of Health Education Using the Audiovisual Method on Family Attitudes Toward the Initial Management of Stroke Symptoms in Ngingas Hamlet, Ngastemi Village, Bangsal District, Mojokerto Regency, it can be concluded that family attitudes before the intervention were mostly in the negative category (23 respondents, 57.5%), whereas after being given health education using the audiovisual method, this increased to a majority positive category (31 respondents, 77.5%). The results of the Wilcoxon Signed Rank Test showed a significance value of 0.001 ($p <$

0.05) with a calculated Z value of $3.300 > Z$ table value of 1.96, so H_0 was rejected and H_1 was accepted, with an effect size of $r = 0.52$ (large effect), which proves that health education using the audiovisual method is effective in improving family attitudes to become more positive in the initial management of stroke symptoms.

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