THE EFFECT OF HEALTH EDUCATION USING AUDIOVISUAL MEDIA ON THE KNOWLEDGE AND ATTITUDE SCORES ABOUT PRE-HOSPITAL STROKE MANAGEMENT IN FAMILIES

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ABSTRACT

Background: Health education about pre-hospital stroke management in families is very important. One of the medias that can be used in providing health education about pre-hospital stroke management is the audiovisual media.

Purpose: The purpose of this study was to find out the effect of health education with audiovisual media on family knowledge and attitudes about pre-hospital stroke management.

Methods: This study employed a pre-experimental design with one group pre-test and post-test design. The population in the study were families who lived and cared for the elderly (caregivers). The sample in this study were 33 respondents who were selected through simple random sampling. The instrument used in this study was a questionnaire. The statistical test used to analyze the data was the Wilcoxon Rank Test.

Results: The results showed that the average pre-test score of knowledge was 3.09, the median post-test score of knowledge was 6, the median pre-test score of attitudes was 28, the median post-test score of attitudes was 30, and the statistical test results obtained the p-value = 0.001.

Conclusion: There is an effect of health education with audiovisual media to the knowledge and attitudes of the families about pre-hospital stroke management. The health workers, particularly those working at the public health center should consider using audiovisual as a medium to provide health education to the community.

Keywords: Attitude, Audiovisual Media, Health Education, Knowledge, Pre-Hospital Stroke Management

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BACKGROUND

Stroke is a condition in which the blood supply to the brain is disrupted due to either an obstruction of blood vessels (ischemic stroke) or the rupture of blood vessels (hemorrhagic stroke). Such disruption prevents oxygen and essential nutrients from reaching brain cells, leading to ischemia within minutes and resulting in irreversible brain tissue damage if not treated promptly. The affected brain area will lose its function, which in turn impairs the body parts controlled by that region (World Stroke Organization, 2022). Individuals experiencing a stroke require rapid and appropriate prehospital management, including early recognition of signs and symptoms and minimizing the response time. Effective prehospital care significantly influences the patient's subsequent clinical outcome (Centers for Disease Control and Prevention, 2022).

Ideally, every family member should possess adequate knowledge of prehospital stroke management. However, many families lack this understanding, which has a negative impact on their attitudes and behaviors (Ministry of Health of the Republic of Indonesia, 2017). Another issue identified is the limited use of health education media, which primarily relies on posters and leaflets that only provide visual information. Visual media alone are constrained in the amount of information conveyed and only engage a single sensory modality—vision (Sumerti et al., 2022). As a result, a more effective medium is required, such as audiovisual media. Audiovisual media can present information more clearly, can be replayed as needed, and engage both vision and hearing simultaneously (Sustiyono, 2021).

Global data from the World Stroke Organization indicate approximately 17 million stroke cases worldwide, causing 6.5 million deaths. In Indonesia, the prevalence of stroke increased from 7% in 2013 to 10.9% in 2018. Bali reported a prevalence of 10.7% in 2018 (Riskesdas, 2018a). In Badung Regency, 32.40% of stroke patients did not attend routine follow-up, and 18.40% did not seek care at health facilities in 2018 (Riskesdas, 2018b). North Kuta Health Center reports high rates of hypertension and diabetes mellitus—key risk factors for stroke. Banjar Kancil in Kerobokan Village has 90 elderly residents, and Kerobokan Village has the largest population in the North Kuta Health Center service area, with 43,372 residents (Badung Health Office, 2022).

Insufficient knowledge leads to negative attitudes regarding prehospital stroke care. The government has attempted to improve awareness using posters and leaflets distributed through public platforms, including the Ministry of Health’s website, yet family knowledge and

attitudes remain inadequate. Inappropriate prehospital management may result in permanent disability or death, making understanding early stroke symptoms and response time critical (Agustini et al., 2017). The selection of health education media also influences educational effectiveness. Audiovisual media tend to be better remembered because they engage two senses —sight and hearing (Pratiwi et al., 2018).

The limited accuracy of prehospital stroke care highlights the need to improve family knowledge and attitudes. Previous studies focusing on audiovisual media for prehospital stroke education remain limited. Rachmawati et al. (2017) reported that many families with insufficient knowledge of stroke symptoms and the golden period arrived late to emergency care. Similarly, Pomalango (2022) found that families of individuals at high risk of stroke generally had poor recognition of stroke symptoms. Riduan et al. (2018) showed that audiovisual education improved knowledge and attitudes regarding early stroke detection. Since knowledge and attitudes influence behavior, providing education is essential.

Based on the above evidence, research evaluating the effect of audiovisual-based health education on family knowledge and attitudes regarding prehospital stroke management remains limited and requires further empirical investigation. Therefore, this study aims to examine the effect of health education using audiovisual media on knowledge and attitude scores regarding prehospital stroke management among families in Banjar Kancil, Kerobokan Village.

OBJECTIVE

This study was to find out the effect of health education with audiovisual media on family knowledge and attitudes about pre-hospital stroke management.

METHODS

Study Design

This study employed a pre-experimental design with a cross-sectional approach. The type of pre-experimental research used was the one-group pretest–post-test design.

Setting

The study was conducted in Banjar Kanci, Kerobokan Village, which is within the working area of the North Kuta Health Centre.

Research Subjects

The population in this study consisted of families who have elderly members, with a total of 130 people. The sampling technique used was total sampling, resulting in a sample size of 130 respondents. The inclusion criteria were: families residing in Banjar Kanci, Kerobokan

Village; families who live with and care for elderly individuals (caregivers); families aged 26–45 years; families who are able to read and write; and families who were willing to participate in the study and signed the informed consent form. The exclusion criteria were families with hearing or vision impairments and families who did not complete participation from the beginning to the end of the study.

Instruments

The research instrument used in this study was based on stroke management guidelines issued by the Ministry of Health of the Republic of Indonesia, which was modified by the researcher according to the study's needs. The knowledge variable consisted of 10 statements and the attitude variable also consisted of 10 statements. The research instrument underwent face validity testing by two experts in the field of stroke and was declared valid.

Intervention

The research procedures began with obtaining a research permit from the Investment and One-Stop Integrated Services Office of Badung Regency. After the research permit was issued, copies of the permit were submitted to the Head of the National Unity and Political Agency of Badung Regency, the North Kuta Subdistrict Office, and the Kerobokan Village Office. Prior to the intervention, the researcher distributed the knowledge and attitude questionnaires and explained the instructions for completion to the respondents.

The researcher then presented an animated video on prehospital stroke management one time in a group session using an LCD projector. After watching the video, the respondents were asked to complete the knowledge and attitude questionnaires again, and the researcher re-explained the procedure for filling them out. The completed questionnaires were collected and used for data analysis.

Data Analysis

Data analysis in this study was carried out in two stages. The first stage consisted of descriptive analysis of respondent characteristics, including gender, last educational attainment, prior information about prehospital stroke management, and sources of that information. The knowledge and attitude variables were tested for normality and found to be not normally distributed, as indicated by p-values $< \alpha$ in both pretest and post-test for each variable. Therefore, the bivariate analysis used a non-parametric test, the Wilcoxon Rank Test.

Ethical Consideration

This study obtained ethical approval from the Ethics Commission of the Bali Institute of Technology and Health, with approval number 04.0158/KEPITEKESBALI/III/2023.

RESULTS

Demography Data

Characteristics of respondents in this study include age, gender, education, occupation, previous exposure to information about prehospital stroke management, and the source of that information

Table 1. Frequency Distribution of Respondent Characteristics (n = 130)

Characteristics	Frequency (f)	Percentage (%)
Age		
26-35 years	63	48,5
36-45 years	67	51,5
Gender		
Female	130	100
Education Level		
Junior High School	37	28,5
Senior High School	51	39,2
Higher Education	42	32,3
Occupation		
unemployed	23	17,7
Military/Police	14	10,8
Medical Personnel	15	11,5
Educator	15	11,5
Entrepreneur	23	17,7
Private Employee	23	17,7
Others	17	13,1
Previous Exposure to Information		
Ever	53	40,8
Never	77	59,2
Source of Information		
Never received information	77	59,2
Social media	27	20,8
Relatives/Family	26	20

Table 1 presents the demographic data of the respondents. The majority of family members who accompanied the elderly were in the age group of 36–45 years, totaling 67 respondents (51.5%). All respondents were female (100%). Most had a higher education background, with 42 respondents (32.2%). In terms of occupation, the majority were unemployed, self-employed, or private employees, each amounting to 23 respondents (17.7%). Most respondents had never received information regarding prehospital stroke management, totaling 77 respondents (59.2%), while those who had received information were 53 respondents (40.8%). The sources of information were mainly from mass media (27 respondents) and from relatives (26 respondents).

Frequency Distribution Test

This study used the Kolmogorov–Smirnov normality test because the sample size was greater than 50 respondents

Table 2. Normality Test of Respondents' Knowledge and Attitude Scores (n = 130)

Kolmogorov smirnov	Significancy
Knowledge score	
Pre-Test	0,013
Post-Test	0,000
Attitude score	
Pre-Test	0,011
Post-Test	0,000

Based on Table 2, the normality test using the Kolmogorov–Smirnov method showed that the p-value for the pre-intervention knowledge score was 0.013 and the post-intervention knowledge score was 0.000, both of which are < 0.05. This indicates that the knowledge variable is not normally distributed. Similarly, the p-value for the pre-intervention attitude score was 0.011 and the post-intervention attitude score was 0.000, both < 0.05, indicating that the attitude variable is also not normally distributed.

Knowledge and Skills Test

Table 3. Frequency Distribution of Pre-Test and Post-Test Knowledge about Prehospital Stroke (n = 130)

	Knowledge	
	Pre-Test n (%)	**Post-Test n (%)**
Good	0	72 (55,4)
Fair	79 (80,8)	58 (44,6)
Poor	51 (39,3)	0

Based on Table 3, it is shown that during the pre-test, the majority of respondents had a moderate level of knowledge, totaling 79 respondents (80.0%), while 51 respondents (39.3%) had a poor level of knowledge. Meanwhile, during the post-test, the majority of respondents demonstrated a good level of knowledge, totaling 72 respondents (55.4%), and 58 respondents (44.6%) had a moderate level of knowledge.

Tabel 4. Frequency Distribution of Pre-Test and Post-Test attitude about pre hospital stroke (n = 130)

	Knowledge	
	Pre-Test n (%)	**Post-Test n (%)**
Good	90 (69,2)	130 (100)
Fair	40 (30,8)	0
Poor	0	0

Based on Table 4, it can be explained that during the pre-test, the majority of respondents had a good attitude, totalling 90 respondents (69.2%), while 40 respondents (30.8%) had a moderate attitude. After the educational intervention was given, during the post-test, all respondents demonstrated a good attitude, totalling 130 respondents (100%).

Table 5. The Effect of Health Education Using Audiovisual Media on Family Knowledge Regarding Prehospital Stroke Management (n = 130)

Wilcoxon Signed Ranks Test Skor Pre-Test & Post-Test Knowledge	
Negative Ranks	0[a]
Positive Ranks	32[b]
Ties	1[c]
Test Statistics	
Asymp. Sig. (2 *tailed)*	0.001

Based on Table 5, the statistical test results for respondents' knowledge scores showed a p-value of 0.001 (p-value < α = 0.05), thus H_a is accepted, indicating that the provision of health education using audiovisual media has a statistically significant effect on the family's knowledge regarding prehospital stroke management in Banjar Kancil, Kerobokan Village.

Table 6. The Effect of Health Education Using Audiovisual Media on Family Attitude Scores Regarding Prehospital Stroke Management (n = 130)

Wilcoxon Signed Ranks Test Skor Pre-Test & Post-Test Attitude	
Negative Ranks	0[a]
Positive Ranks	24[b]
Ties	9[c]
Test Statistics	
Asymp. Sig. (2 tailed)	0.001

Based on Table 6, the statistical test results for the respondents' attitude scores showed a p-value of 0.001 (p-value < α = 0.05). Therefore, H_a is accepted, indicating that the provision of health education using audiovisual media has a statistically significant effect on the family's attitude regarding prehospital stroke management in Banjar Kancil, Kerobokan Village.

DISCUSSION

The study showed that health education using audiovisual media had an effect on the family's knowledge scores regarding prehospital stroke management.

This was demonstrated by an increase in the family's knowledge scores after receiving health education. This finding is consistent with previous research which reported that balanced

nutrition education using video media influenced students' knowledge. Video media has the ability to present complex information in a way that is easy to understand (Suprapto et al., 2021). Another study also revealed that counseling using video media affected adolescents' knowledge about anemia (Asmawati et al., 2021). However, the findings of this study should still be interpreted cautiously because no control group was involved, preventing comparison between the intervention and control groups, and the research outcomes are highly influenced by respondent characteristics.

Individuals grow and develop within a family. One of the primary functions of the family is the health care function, namely the family's role in performing health behaviors and practices among its members, which influences the overall health status of the family (Kholifah & Widagdo, 2016). Families living with older adults must possess adequate knowledge regarding possible health problems in the elderly. One such health condition is stroke. A person experiencing a stroke needs to receive appropriate management before arriving at the hospital. The family's ability to perform prehospital stroke management is influenced by their knowledge and attitudes. Families should improve their understanding in order to perform prehospital stroke management correctly (Ministry of Health of the Republic of Indonesia, 2017).

Health education regarding prehospital stroke management must be provided to families to improve knowledge, and change attitudes and behaviors. Effective health education requires appropriate media to ensure optimal outcomes. Audiovisual media can facilitate delivery of information and enhance respondent understanding because it engages both visual and auditory senses. Audiovisual media is also more interesting to observe and less monotonous (Saragih & Andayani, 2022). Research by Fadilah et al. (2019) reported that health education using audiovisual media is more effective in increasing knowledge compared to lecture-based methods. Meanwhile, research by Janah & Timiyatun (2020) showed that audiovisual-based health education is more effective than leaflet-based education.

Adequate knowledge about prehospital stroke management contributes to minimizing permanent disability and even death in stroke patients. Accuracy and timeliness in providing early stroke care influence recovery outcomes. Therefore, health workers need to actively provide health education to the community regarding the importance of proper prehospital stroke treatment. Audiovisual media has been proven to be more effective in enhancing audience knowledge compared to other media. However, health education media currently used in practice are still dominated by posters or leaflets, which provide limited information and are

less engaging. Therefore, audiovisual media can serve as a solution to improve information comprehension effectively and efficiently.

Effect of Health Education on Family Attitude Score

The findings also showed that health education using audiovisual media had an effect on family attitude scores regarding prehospital stroke management. This was evidenced by an increase in attitude scores after the educational intervention. This is consistent with previous research which reported that audiovisual education for early stroke detection influenced attitudes among individuals at high risk of stroke (Riduan et al., 2018). Other research also revealed that learning using animated video media increased responsibility attitudes among early childhood students. Animated videos can improve memory retention and help children apply the knowledge they have gained (Irawan et al., 2021)

A positive family attitude is one of the keys to the successful implementation of proper prehospital stroke management. Attitudes are formed after a person receives information or has knowledge. Individuals with good knowledge are more likely to demonstrate positive attitudes (Irwan, 2017). Health education is one of the approaches to improve knowledge and attitudes. Health information is better absorbed when delivered through appropriate media. Audiovisual media features sound and visuals, engaging both hearing and sight. This dual-sensory involvement makes audiovisual media more advantageous compared to media that stimulate only one sense. It also enhances visualization and engagement, making it easier for respondents to understand and retain information (Saragih & Andayani, 2022).

The concept of stroke management emphasizes “time is brain” and the importance of the “golden period.” Adequate knowledge accompanied by positive attitudes serves as a key to comprehensive stroke management. Information regarding prehospital stroke care must be widely disseminated through health education because stroke is an emergency condition. While health education can be delivered through various media, lecture-based or leaflet methods are still commonly used and only stimulate one sense. Therefore, more effective media, such as audiovisual media, are needed to improve learning outcomes and public awareness.

CONCLUSION

Health education using audiovisual media influences family knowledge and attitude scores regarding prehospital stroke management. Proper and effective prehospital stroke management is a skill that families must possess. Audiovisual-based health education can serve as an effective strategy to increase knowledge and improve attitudes. This study suggested that

Health workers, especially in primary health care centers, are encouraged to consider the use of audiovisual media in delivering health education to patients and the community regarding prehospital stroke management and other health-related topics to enhance the effectiveness of information delivery. Families, particularly those living with and caring for elderly individuals, are encouraged to utilize audiovisual media to improve their knowledge and develop positive attitudes toward prehospital stroke management and other health issues. Audiovisual media can enhance memory retention and improve comprehension.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest in this research.

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