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THE EFFECT OF AUDIO-VISUAL EDUCATION ON THE ABILITY TO EARLY DETECT STROKE IN FAMILIES WITH HIGH RISK OF STROKE IN THE WORK AREA OF UPTD PUSKESMAS TUMBANG KAMAN

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Abstract
A stroke is a disruption or cessation of blood supply to the brain due to blockage or rupture of a blood vessel. This situation leads to a lack of nutrients and oxygen needed by brain cells. The prevalence in Central Kalimantan has a fairly high number of non-communicable disease cases at 3.39% in 2018 and in Katingan Regency is 3,91%. Meanwhile, in the Tumbang Kaman Health Center area, the number of people with non-communicable diseases in 2023 is 108%. Objective: To analyze before and after Audio-visual Education is given the ability to detect early stroke attacks in the UPTD Puskesmas Tumbang Kaman Work area. Method: This study used a pre-experimental research design with a one-group pre-test and post-test approach. The population in this study were families of stroke patients in the UPTD Puskesmas Tumbang Kaman area with a total of 47 patients and a sample of 30 patients. Statistical analysis using the Wilcoxon test. Results of the study: The ability of families before audio-visual education about early detection of stroke attacks Most 50% were in the good category, after audio-visual education about early detection of stroke attacks, most 86.66% were in the good category. There is an influence of audio-visual education on the ability of families to detect early stroke attacks in families at high risk of stroke (0.000 < 0.05). Families can improve understanding of early detection of stroke attacks

Keywords: Audio visual, early detection, stroke

INTRODUCTION

A stroke is a condition characterized by a sudden and acute disruption of brain function, either focal or global, lasting more than 24 hours. This condition is caused by an interruption of blood flow to the brain, either due to hemorrhage or a blockage of blood vessels, resulting in symptoms that correspond to the affected part of the brain. Stroke can lead to full recovery, recovery with disability, or even death (Roni et al., 2021).

Stroke symptoms can be physical, psychological, or behavioural. The most common physical symptoms include weakness or paralysis of the limbs, loss of sensation in the face, asymmetrical lips, difficulty speaking or slurred speech (aphasia), difficulty swallowing, decreased consciousness, headaches (vertigo), nausea, vomiting, and loss of vision on one side, or even blindness

(Black & Hawks, 2014).

According to data from the World Health Organization (2019), there were 17 million stroke cases globally, resulting in 6.5 million deaths. In Indonesia, the prevalence of stroke increased from 7% in 2013 to 10.9% in 2018. Central Kalimantan recorded a high rate of non-communicable diseases at 3.39% in 2018 (Riskesdas, 2018), while Katingan Regency reported a rate of 3.91% (Data Kalteng, 2018). In 2023, the Tumbang Kaman Health Center reported a 108% prevalence of non-communicable diseases.

Stroke emergencies have significant and widespread impacts. Globally, stroke causes millions of deaths each year and is a leading cause of long-term disability. Early detection of stroke attacks is essential, as it increases the chances of recovery for patients. Healthcare workers must be able to recognize stroke symptoms, such as paralysis, speech difficulties, or confusion, and respond quickly and effectively. Healthcare providers also need adequate knowledge of stroke management protocols and the ability to perform initial evaluations and stabilize patients before transferring them to appropriate healthcare facilities. Adequate training, early detection tools, and efficient communication are vital in providing timely care to stroke patients. The first step in treating a stroke is to immediately call emergency services or an ambulance for prompt medical assistance (American Stroke Association, 2019).

Audio-visual media refers to resources that combine sound and visual elements to deliver information. These media can be an effective educational tool, providing easily accessible content for families of high-risk stroke patients to help them understand early stroke detection. The use of audio-visual methods in elderly health posts has advantages in improving the understanding of stroke symptoms among the families of high-risk stroke patients. Audio and visual presentations make information about stroke symptoms clear, engaging, and easy to understand. The general objective of this study is to analyze the impact of audio-visual education on the ability to detect early stroke symptoms before and after it is provided in the work area of UPTD Puskesmas Tumbang Kaman.

METHODS

This study employed a quantitative method with a one-group pre-test and post-test design to evaluate the effectiveness of audio-visual education on enhancing families' ability to detect early stroke attacks, involving 30 respondents who experienced a stroke at Puskesmas Tumbang Kaman. Participants, specifically families at high risk of stroke, were first assessed on their understanding of stroke-related issues through a pre-test questionnaire. Following this, an audio-visual education session was conducted to provide information on early stroke detection, after which a post-test was administered to measure any improvements in understanding. Data analysis utilized the Wilcoxon statistical test to identify significant changes, and the study incorporated audio-visual materials based on the Counseling Activity Unit (SAP) and a questionnaire featuring 10 yes/no questions related to stroke knowledge, causes, symptoms, management, and impacts. Ethical approval was secured from Muhammadiyah University of Banjarmasin, with ethics certificate number KEPK: 0128226371, dated March 4, 2024.

RESULTS AND DISCUSSION

The ability of families before and after audio-visual education for 30 respondents is outlined in the table below.

Table 1
Frequency Distribution of Family Ability Before and After Audio-Visual Education

No	Ability	Pre		Post	
n	%	n	%		
1	Good	15	50	26	86.7
2	Fair	9	30	3	10
3	Poor	6	20	1	3.3
	Total	30	100	30	100

Source: Secondary Data 2024

Based on Table 1.5, the data indicates that the ability of families before audio-visual education was nearly half (50%) in the good category, with a total of 15 individuals. After the audio-visual education, nearly all families (86.7%) fell into the good category, totalling 26 individuals.

The analysis focused on the effect of audio-visual education on families' ability to detect early stroke attacks among those at high risk. This effect was evaluated using the Wilcoxon test, as shown in the table below:

Table 2
Cross-tabulation of Stress Levels with Hypertension

Variable Family Ability	P-Value
Pretest-Posttest	0.000

Source: Secondary Data 2024

Based on Table 2, the calculated p-value is 0.000. When this calculated p-value is compared with the α value, it is found to be less than 0.05; therefore, it can be concluded that H0 is rejected.

Family Ability Before Audio-Visual Education on Early Stroke Detection

The findings indicate that prior to the implementation of audio-visual education on early stroke detection, 20% of the families demonstrated a poor understanding of the signs and symptoms associated with strokes, which amounts to six individuals. This lack of comprehension underscores the critical need for effective health education interventions. According to Musrah et al. (2024), the role of family education is paramount in enhancing knowledge regarding stroke prevention and management, emphasizing that increased awareness within families can significantly impact the care of post-stroke patients.

The limitations in understanding among these families can be attributed to various factors, including socio-economic status, cultural background, and access to information. Family dynamics play a crucial role in health education, as family members often serve as primary caregivers. Therefore, their knowledge and understanding directly influence the quality of care that post-stroke patients receive.

Educational interventions tailored to the specific needs of families can lead to better outcomes in stroke management. This aligns with the findings of the current study, which suggest that improving family comprehension regarding early stroke detection is essential for effective response and intervention. By leveraging audio-visual media, health educators can create engaging and informative content that addresses barriers to understanding and fosters a proactive approach among families in recognizing stroke symptoms.

Family Ability After Audio-Visual Education

Before the audio-visual education was conducted, the percentage of families with good detection ability was only 50%, or 15 individuals. This indicates that half of the total respondents still had a poor ability to detect early signs of stroke attacks. After the audio-visual education, the percentage of families with good detection ability increased to 86.7%, or 26 individuals. This means that nearly all respondents had a good ability to detect early signs of stroke attacks. The increase in the percentage of respondents with good ability from 50% to 86.7% demonstrates that audio-visual education is effective in enhancing families' ability to detect early stroke attacks. The intervention through audio-visual education has proven to improve the knowledge and skills of families in recognizing early stroke symptoms, allowing them to take appropriate and timely action.

Educational media can generally be classified into three types: visual, audio, and audio-visual. Audio-visual media is a type of medium that presents information or messages both auditorily and visually. Audio-visual media contributes significantly to behavioral change in society, particularly in terms of information and persuasion. This medium combines two elements, each of which possesses strengths that synergize to create a greater impact. It stimulates both hearing and sight, leading to more effective outcomes (Liu, S., & Wu, J. 2023).

Audio-visual media can enhance learning outcomes by engaging imagination and increasing motivation. The use of media in education is highly recommended to improve the quality of learning (Mayer, R. E. 2021). Audio-visual media encourages a desire to learn more. Not only does it provide an effective way to learn in a shorter time, but information received through audio-visual media also tends to be retained longer and stored more effectively in memory. The use of audio-visual media has proven effective in achieving educational objectives, as it simultaneously stimulates both auditory and visual senses. By integrating sound and imagery, learners find it significantly easier to comprehend and absorb information, thereby enhancing engagement and interactivity during the learning process. Recent studies highlight that multi-sensory learning approaches, such as those employed in audio-visual media, lead to improved retention and understanding of complex concepts (Zhang et al., 2023).

According to Mayer (2021), the Dual Coding Theory suggests that information presented through both auditory and visual channels allows learners to create mental connections that facilitate deeper understanding. This approach not only captures the learners' attention but also caters to diverse learning styles, making it an inclusive strategy that benefits a broader audience (Garcia & Vega, 2023). Additionally, audio-visual media can simplify complex subjects, breaking down barriers to understanding that may exist in traditional learning formats (Liu & Wang, 2023).

Moreover, interactive elements in audio-visual materials such as quizzes, simulations, and animated explanations further enhance the learning experience by promoting active engagement (Hwang et al., 2022). As a result, learners are more likely to participate actively and retain information longer, which is crucial in educational settings, especially in health education, where understanding critical information can lead to timely interventions

The Impact of Audio-Visual Education on Early Stroke Detection Ability in Families at High Risk of Stroke

The analysis using the Wilcoxon test revealed a p-value of 0.000, which is less than α (0.05). This indicates that the null hypothesis (H0) is rejected, and there is a significant effect of audio-visual education on the ability to detect early stroke attacks in families at high risk of stroke. These findings underscore the importance of educational interventions in enhancing family knowledge regarding early stroke detection.

Education utilizing audio-visual media has proven effective as it engages both auditory and visual senses simultaneously. This dual-sensory learning process allows learners to comprehend and retain the information presented more easily. Previous research has indicated that multi-sensory stimulation can enhance cognitive processes, making it easier to store the information received in long-term memory (Juwita, 2023).

By employing audio-visual methods, information about the early signs of stroke is conveyed in a more engaging and interactive manner. When families receive knowledge about early stroke detection through audio-visual means, they not only listen to explanations but also view images and graphics that support the information. This aids them in developing a better understanding and enhances their ability to identify stroke symptoms early.

Furthermore, the learning process that involves both senses can optimize information processing in the brain. Visual and auditory stimulation works asymmetrically, meaning that the brain can process information more efficiently, thereby facilitating the reception, storage, and retrieval of that information later. This finding aligns with studies by Hwang et al. (2022), which demonstrate that interactive elements in audio-visual materials can increase active engagement among learners, making them more prepared to apply the knowledge gained in real-life situations. This study indicates that early stroke detection education using audio-visual methods not only improves knowledge but also enhances families' ability to detect stroke symptoms. Therefore, the development and implementation of audio-visual educational programs should be considered an effective strategy to increase awareness and readiness among families facing the risk of stroke, ultimately reducing the potentially fatal impacts of this condition.

CONCLUSION

This study concludes that audio-visual education significantly enhances families' ability to detect early stroke attacks, particularly among high-risk groups. The analysis using the Wilcoxon test yielded a p-value of 0.000, indicating that this type of education improves both knowledge and practical skills in recognizing early stroke symptoms. The combination of visual and auditory stimulation facilitates better understanding and retention of information, leading to a more interactive learning experience.

The findings highlight the effectiveness of a multisensory approach in health education, which aids in information retention and comprehension of complex concepts. This dual stimulation prepares families to respond proactively to stroke risks, ultimately mitigating the severe impacts of the condition.

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