Research Article

THE EFFECT OF RANGE OF MOTION (ROM) EDUCATION USING AUDIOVISUAL MEDIA ON THE KNOWLEDGE AND ATTITUDES OF FAMILIES OF STROKE PATIENTS IN THE WORKING AREA OF KUIN RAYA PUBLIC HEALTH CENTER, BANJARMASIN

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Abstract

Background: Stroke is a leading cause of disability and mortality worldwide, including in Indonesia. Rehabilitation through Range of Motion (ROM) exercises is essential to prevent post-stroke complications. Family involvement in home care plays a crucial role; however, there are still limitations in the knowledge and attitudes of family members regarding its implementation. This study aimed to determine the effect of ROM education using audiovisual media on the knowledge and attitudes of family members of stroke patients in the working area of Kuin Raya Public Health Center, Banjarmasin. **Method:** This study employed a pre-experimental design with a quantitative approach using a one-group pretest-posttest model. A total of 35 family members of stroke patients were selected through purposive sampling based on specific inclusion criteria. Data were collected using structured questionnaires on knowledge and attitudes, and analyzed using the Wilcoxon Signed Rank Test. **Results:** The results showed a significant difference in the knowledge ($p = 0.001$) and attitudes ($p = 0.001$) of the family members before and after receiving ROM education through audiovisual media. **Discussion:** ROM education using audiovisual media was proven effective in improving the knowledge and attitudes of stroke patients' family members. This intervention is recommended to be implemented in health services as part of a family-based stroke rehabilitation education program.

Keywords: Attitude, Audiovisual Media, Family, Knowledge, Range of Motion (ROM), Stroke

Background

Stroke is a serious public health issue that not only leads to death but also causes long-term disability, significantly affecting both individuals and the broader community. According to data from the World Health Organization (2023), stroke ranks as the second leading cause of death globally and is the primary cause of disability. In Indonesia, based on the 2018 Basic Health Research (Riskesdas), stroke is the leading cause of hospital deaths, with a national prevalence of 10.9 per mille. In South Kalimantan, the prevalence is even higher at 12.7%, with the number of cases increasing each year (Adawiyah et al., 2024). The latest report from the Banjarmasin City Health Office (2025) recorded 1,386 new cases in 2024, with the highest incidence found among the elderly aged 60–69 years. This surge highlights the need to strengthen stroke prevention and management efforts at both the community and healthcare facility levels, including improvements in education, early detection, and access to rehabilitation services.

Rehabilitation plays a crucial role in the recovery of post-stroke patients and cannot be overlooked. One effective intervention is the Range of Motion (ROM) exercise, which aims to prevent joint stiffness, maintain flexibility, and improve muscle strength (Permatasari, Utami, & Ludiana, 2024). However, the implementation of ROM at home heavily relies on family support, as they serve as the primary caregivers (Kasrin et al., 2024). Active family involvement in providing ROM exercises can reduce patient dependency and prevent permanent disability. In this context, audiovisual media has proven effective in enhancing family understanding and skills in performing ROM exercises correctly and

consistently (Fleischer et al., 2021; Permatasari et al., 2024). As stated by Herdman (2020), impaired physical mobility without appropriate intervention may lead to serious complications such as contractures and orthostatic hypotension. By optimizing education-based ROM exercises that are easily accessible, stroke patients' quality of life can improve more rapidly, while the physical and emotional burdens on families can be reduced.

Research by Sari, Fitri, and Maryana (2023) emphasizes that family involvement is a crucial element in patient care, as the family bears direct responsibility for the health condition of its members, both in sickness and in health. Agustin (2022) also states that social support from the surrounding environment helps families feel stronger and not alone in facing the challenges of caring for stroke patients. In this regard, family adaptation to the patient's condition is essential, including mental readiness, emotional stability, and adequate knowledge (Wulansari, Nurmala, & Hargono, 2020). When families possess sufficient knowledge and skills, home-based care can be delivered more effectively, thereby optimizing patient recovery.

However, field observations still reveal a gap in family education regarding stroke rehabilitation. According to the South Kalimantan Provincial Health Office (2023), health education in Banjarmasin for families of stroke patients remains suboptimal. This is evident from the limited understanding of ROM exercises, which are critical interventions for preventing complications and accelerating recovery. Interviews with ten families of stroke patients revealed that most were unfamiliar with ROM, its benefits, and the correct way to perform it. Their knowledge was limited to basic movements such as pressing or straightening the weakened limbs, without a comprehensive understanding of the techniques or objectives. This lack of awareness underscores the importance of delivering clear and easily understandable information—one of which is through audiovisual media—to enable families to confidently and accurately carry out patient care.

Given the importance of family knowledge and attitudes in implementing ROM exercises to prevent long-term disability and help restore the patient's ability to meet daily needs, the researcher was motivated to conduct a study entitled "The Effect of Range of Motion (ROM) Education Using Audiovisual Media on the Knowledge and Attitudes of Families of Stroke Patients in the Working Area of Kuin Raya Public Health Center, Banjarmasin."

This study aims to determine and analyze the effect of ROM education using audiovisual media on the knowledge and attitudes of family members caring for stroke patients in the working area of Kuin Raya Public Health Center, Banjarmasin.

Method

This study employed a quantitative approach with a one-group pretest-posttest design without a control group, meaning that only a single group was observed without any comparison group. Prior to the intervention, a baseline assessment (pretest, O1) was conducted to measure the knowledge and attitudes of family members of stroke patients regarding Range of Motion (ROM). The participants then received an educational intervention using audiovisual media in the form of a video on ROM exercises (X). Following the intervention, a second measurement (posttest, O2) was conducted to assess any changes in the participants' knowledge and attitudes. This design was intended to determine the extent to which the educational intervention influenced the outcomes. According to Sugiyono (2018), the independent variable in this study is ROM education using audiovisual media, while the dependent variables are the level of knowledge and attitudes of stroke patients' families regarding ROM.

The operational definitions in this study are described through three main variables. First, ROM education using audiovisual media refers to the delivery of health information aimed at improving family knowledge and attitudes toward ROM exercises. Second, knowledge level was assessed based on four indicators—definition, objectives, benefits, and types of ROM movements—and categorized into three levels: good, moderate, and poor. Third, attitudes of the family were measured across three dimensions: cognitive, affective, and conative, and were classified into three categories: unsupportive, supportive, and highly supportive (Sandi & Bakri, 2021).

Measurements were conducted using structured questionnaires and observation sheets developed according to predefined indicators.

The population of this study consisted of all family members of stroke patients in the working area of Kuin Raya Public Health Center, Banjarmasin, totaling 122 individuals. The sample size was calculated using Slovin's formula with a 15% margin of error, resulting in a sample of 32 respondents. To account for potential dropouts, an additional 10% was added, yielding a final sample of 35 respondents. A non-probability purposive sampling technique was employed, where participants were selected based on specific inclusion criteria. These criteria included willingness to participate, having a family member who had experienced a second or subsequent stroke, and living in the same household as the patient. Families who frequently alternated caregiving roles or who had mental health issues were excluded from the study.

The instruments used in this study underwent validity and reliability testing. Validity was tested using Pearson's Product-Moment Correlation with a significance level of 0.05. All questionnaire items were deemed valid, as the calculated correlation coefficients (r-value) were greater than the critical value (0.378). Reliability testing was conducted using the Cronbach's Alpha method. The results showed that the knowledge questionnaire had an alpha coefficient of 0.789, while the attitude questionnaire had an alpha of 0.805. These values exceed the minimum threshold of 0.60 (Wahyuningsih, 2024), indicating that the instruments used in this study were reliable, consistent, and dependable for measuring the intended variables.

Results and Discussion

Respondent Characteristic

Table 1. Characteristics of Respondent

Characteristic	f	(%)
Age		
19-44 years	22	62%
45-59 years	10	29%
>60 years	3	9%
Gender		
Male	6	17%
Female	29	83%
Last Education Level		
No Formal Education	0	0%
Elementary School	7	20%
Junior High School	7	20%
Senior High School	19	54%
Higher Education	2	6%
Occupation	12	11,76
Farmer	7	20%
Housewife	8	23%
Merchant	6	17%
Private Sector Employee	11	31%
(Civil Servant) ASN	1	3%
Unemployed	2	6%
Total	**35**	**100**

Source: Primary Data (2025)

Based on Table 1, the characteristics of respondents—family members of stroke patients—in the working area of Kuin Raya Public Health Center, Banjarmasin, indicate that the majority were in the 19–44 age group, accounting for 62%. In terms of gender, female respondents predominated, comprising 83% of the sample. Regarding educational background, most respondents were senior high school graduates (54%). As for occupation, the highest proportion worked in the private sector (31%). These data suggest that the majority of respondents were women of productive age, with a secondary education level and employment in the informal sector.

Univariate Analysis Results

Table 2. Univariate Analysis Results

Variable	Pre		Post	
	n	(%)	n	(%)
Knowledge				
Good	7	20	32	91
Moderate	25	71	3	9
Poor	3	9	0	0
Attitude				
Unsupportive	7	20	0	0
Supportive	26	74	6	17
Highly Supportive	2	6	29	83
Total	**35**	**100**	**35**	**100**

Source: Primary Data (2025)

Based on Table 2, the results of the univariate analysis of the knowledge level among family members of stroke patients showed a significant improvement following the educational intervention using audiovisual media. Prior to the intervention (pretest), only 20% of respondents had a good level of knowledge, while the majority (71%) fell into the moderate category, and 9% were classified as having poor knowledge. After the posttest, the proportion of respondents in the good knowledge category surged to 91%, while

those in the moderate category decreased sharply to 9%, and none remained in the poor category. These findings indicate that the educational intervention effectively enhanced the families' understanding of Range of Motion (ROM) exercises.

Still referring to Table 2, a significant shift was also observed in the respondents' attitudes toward implementing ROM. Before the intervention, 20% of respondents were categorized as having an unsupportive attitude, 74% were supportive, and only 6% were highly supportive. Following the audiovisual education, none of the respondents remained in the unsupportive category, the supportive group decreased to 17%, and there was a substantial increase in the highly supportive group, which rose to 83%. These results demonstrate that, in addition to improving knowledge, the audiovisual-based intervention also had a positive impact on shaping more favorable attitudes among family members.

Bivariate Analysis Results

Table 3. Non-Parametric Test Results on Family Knowledge and Attitudes Regarding ROM Before and After Education

Variable	ROM Education		p-value
	Pre	Post	
Knowledge			
Good	7	32	
Moderate	25	3	0.001
Poor	3	0	
Attitude			
Unsupportive	7	0	
Supportive	26	6	0.001
Highly Supportive	2	29	
Total	**35**	**100**	

Source: Primary Data (2025)

Discussion

Family Knowledge of ROM in the Work Area of Kuin Raya Public Health Center, Banjarmasin

Family Knowledge of ROM Before Education

The results of this study indicate that prior to the educational intervention, 71% of respondents demonstrated a moderate level of knowledge regarding Range of Motion (ROM). Based on the respondents' answers, it was evident that while some had prior knowledge of ROM, the majority lacked adequate understanding.

This finding highlights the necessity of providing health education to families of stroke patients in order to improve their comprehension and awareness of ROM. This is consistent with the findings of Ixora et al. (2024), who define health education as a deliberate effort to influence individuals, groups, or communities to adopt behaviors expected by health educators or promoters. This concept encompasses three key components: inputs (target audience and educators), processes (efforts to influence behavior), and outputs (behavioral changes aligned with health goals). The ultimate objective of health education or promotion is to foster health-supportive behaviors in individuals or groups.

Health education, like general education, involves the use of various media and instructional methods. The choice of media is crucial to ensure that the information delivered is easily understood by the audience. Traditionally, health education for families has relied heavily on leaflets and lectures or presentations. The use of audiovisual media, however, remains uncommon despite several studies suggesting its effectiveness in enhancing knowledge. Audiovisual media facilitate information processing through both auditory (sound) and visual (image) channels, such as video recordings, slides, or films.

This is supported by a study by Fleischer et al. (2021), which found that the use of audiovisual media in ROM education significantly improves the understanding and engagement of stroke patients' families. Videos that demonstrate proper ROM techniques help clarify the movements and serve as motivational examples for families to support exercise routines at home more consistently.

Although a small number of respondents were already familiar with ROM, a larger proportion lacked such knowledge. This aligns with the findings of Mariati et al. (2023), who reported that respondents generally demonstrated a moderate level of knowledge prior to receiving education.

These results suggest that, prior to the intervention, most respondents had only a moderate understanding of ROM. Therefore, implementing educational efforts is necessary to enhance their knowledge. Based on the theoretical framework discussed, the researcher assumes that education serves as a

means of delivering information with the goal of increasing the respondents' understanding of ROM. Knowledge can be defined as the outcome of a person's comprehension of new information. Most knowledge is acquired through sensory experiences—especially hearing and vision. Thus, the more information individuals receive through these senses, the broader their knowledge becomes.

Family Knowledge of ROM After Education

The findings of this study indicate that following the educational intervention, 32 respondents (91%) demonstrated a high level of knowledge regarding Range of Motion (ROM), while the remaining 3 respondents (9%) exhibited a moderate level of knowledge. Notably, there were no respondents categorized as having low knowledge after the intervention. Additionally, the number of respondents with good knowledge increased significantly from 7 individuals (20%) before the intervention to 32 individuals (91%) afterward.

Among the 25 respondents who were previously categorized as having moderate knowledge, only 3 remained in that category after the education was delivered. Interestingly, these 3 respondents had initially been categorized as having low knowledge before the intervention. This shift indicates a clear improvement in knowledge following the educational treatment.

An analysis of responses to items 2 and 3, which focused on the definition of ROM, and item 10, which addressed the types and movements of ROM, revealed improved understanding among respondents after receiving the educational intervention. This improvement is attributed to a transition from a basic level of comprehension (C2 level) to a more advanced understanding. Health education is a dynamic process of behavioral change aimed at influencing or modifying human behavior. It involves the dissemination of information, the cultivation of beliefs, and the enhancement of awareness and knowledge, enabling individuals to adopt health-promoting behaviors that support a healthy lifestyle. This process applies at the individual, group, and community levels, and is an integral component of public health programs (Rosidin, Sumarni, & Suhendar, 2021).

These findings are further supported by Rachman, Fitri, and Aggreini (2023), who found that health education significantly improves knowledge, as evidenced by the statistically significant differences in pre- and post-intervention knowledge scores. Knowledge is the result of a person's sensory perception and understanding of an object through their five senses. However, in this study, three respondents remained in the moderate category post-intervention. The researcher assumes this may be due to individual differences in how respondents processed the information presented during the educational sessions.

Overall, the study demonstrates that health education interventions using audiovisual media significantly enhance family knowledge about ROM or joint mobility exercises. The combined use of audio and visual stimuli allows families to better comprehend and retain the material, resulting in a substantial increase in knowledge levels.

Following the intervention, all respondents reported an understanding of ROM. Based on the theoretical framework and prior discussion, it can be concluded that health education is a process in which information is conveyed with the aim of improving an individual's health knowledge and behavior. Knowledge enhancement plays a vital role in health education, as it has a long-term influence on an individual's behavior and attitude.

Family Attitudes Toward ROM in the Work Area of Kuin Raya Public Health Center

Family Attitudes Toward ROM Before Education

The findings of this study indicate that prior to the educational intervention, the majority of respondents (74%, or 26 individuals) exhibited a supportive attitude toward Range of Motion (ROM) education. Meanwhile, 20% (7 respondents) showed a less supportive attitude, and only 6% (2 respondents) demonstrated a highly supportive attitude.

According to Notoatmodjo (in Ningsih, Sumanti, & Lisca, 2023), attitude is an evaluative response toward an object, individual, or specific situation that reflects feelings, beliefs, and behavioral tendencies. Attitude is considered a predisposition or covert behavior, meaning it does not always

manifest in direct action. However, attitude plays a significant role in predicting behavior.

This is consistent with Notoatmodjo's explanation (in Maghfiroh & Hanafi, 2023), which asserts a positive correlation between knowledge improvement and attitude change. Knowledge may be acquired through education, which expands individuals' perspectives and thinking patterns. Furthermore, respondents may have been exposed to relevant information either intentionally or unintentionally.

Nevertheless, some respondents still exhibited a less supportive attitude. For example, on item 7 of the attitude questionnaire, which stated, “I am responsible for assisting the patient with joint mobility exercises, such as light physical activity and walking,” three respondents (9%) answered “never”, which was considered an incorrect response. On item 10, which stated, “I help the patient perform ROM exercises, such as bending, straightening, and rotating movements of the limbs,” seven respondents (20%) answered “never”. Additionally, for item 11, “To ensure proper and correct ROM exercises, I use video guidance and correct movements when necessary,” 20 respondents (57%) answered “never”, and 2 respondents (6%) answered “almost never”, all of which were considered incorrect responses.

These findings prompted the researchers to implement audiovisual-based education, in line with a study by Marwanti, Noorkhayati, and Rahayuningsih (2021), which states that health education acts as a stimulus, encouraging individuals to form judgments and opinions about the information they receive and ultimately leading to health-related practices or behaviors.

This perspective is supported by Notoatmodjo (2021), who asserts that information delivered through the senses can stimulate individuals to gain greater awareness and modify their attitudes accordingly. If the information is perceived as useful, it can lead to positive attitude changes. Conversely, if it is perceived as irrelevant, no change in attitude is likely to occur.

Based on these explanations, the researcher assumes that the presence of supportive and less supportive attitudes may stem from the varying levels of information received by the respondents, or due to limited access to knowledge about ROM or joint movement exercises. This lack of information significantly influences how respondents form their attitudes.

Overall, the findings reveal that while some respondents demonstrated a supportive attitude toward ROM, others still lacked sufficient support. This can be addressed through targeted ROM education, which may help increase understanding and foster a more positive or highly supportive attitude toward ROM implementation.

Family Attitudes Toward ROM After Education

The findings revealed that following the health education intervention, the majority of respondents (83%, or 29 individuals) exhibited a very supportive attitude toward ROM, while the remaining 17% (6 respondents) demonstrated a supportive attitude. Based on the participants' responses, there was a notable increase in the proportion of respondents with a very supportive attitude, although some continued to show only a supportive stance.

Instruments number 3, regarding conducting ROM exercises with the patient every morning and evening, and number 11, related to ensuring the accuracy of ROM movements, showed a significant shift in respondents' attitudes toward a very supportive level. This change may be attributed to respondents initially being in the “responding” phase and not yet reaching the “responsibility” phase in their attitude development.

Consistent with the findings of Suciana et al. (2023), health education was found to influence both knowledge and attitude. Theoretically, attitude change begins with knowledge, as knowledge serves as a critical foundation for attitude formation. Attitudes based on knowledge are more likely to be sustained over time, whereas those lacking a foundation in awareness and understanding tend to be short-lived. Furthermore, this process allows individuals to make judgments or take positions based on their acquired knowledge. Once individuals assess and internalize the information, it is expected that they will apply their knowledge and act responsibly.

Azwar, as cited in Talindong and Juanda (2022), describes attitude as an emotional evaluation or response to an object, which may manifest as either positive or negative feelings. Attitude comprises three primary components: beliefs, emotional evaluation of the object, and behavioral tendencies. The combination of these three components forms an individual's overall attitude. In this study, these components were successfully formed among the respondents, contributing to the development of a very supportive attitude toward ROM.

The observed shift from supportive or less supportive attitudes to a very supportive stance can also be attributed to the appropriateness of the information received and the stepwise delivery method of the educational materials (Puji Hadiyanti, 2023).

According to the researchers' assumptions, the improvement in respondents' attitudes was influenced by the provision of ROM-focused health education. This education fostered a sense of responsibility to consistently assist stroke patients with joint movement exercises. It also enhanced their understanding and encouraged a more proactive and highly supportive attitude regarding ROM implementation.

Overall, the study indicates that respondents' attitudes toward ROM were predominantly very supportive. One key factor contributing to this improvement was the educational intervention, which enhanced their awareness and understanding of the importance of practicing and implementing ROM with stroke patients. It can be concluded that the development of a very supportive attitude toward ROM was primarily driven by increased knowledge gained through the appropriate delivery of health education.

The Effect of ROM Education Using Audiovisual Media on the Knowledge Level of Families of Stroke Patients in the Working Area of Kuin Raya Community Health Center, Banjarmasin

The results of the study indicate a significant improvement in respondents' knowledge following the educational intervention. The number of respondents with a *good* level of knowledge increased from 20% (7 respondents) to 91% (32 respondents). Meanwhile, those in the *moderate* knowledge category decreased from 71% (25 respondents) to 9% (3 respondents). Additionally, no respondents remained in the *poor* knowledge category after the ROM education intervention.

According to Notoatmodjo (Hidayat, Rohmanudin, & Efendi, 2022), health education can influence individual and community knowledge, thereby aiding decision-making related to health. In general, health education is defined as any planned effort aimed at influencing health-related behaviors in individuals, groups, or communities. Maryam, as cited in Bancin et al. (2022), stated that health education is a method used to improve a person's knowledge and ability through teaching techniques or instruction. Its goal is to change or influence individual or collective behavior to become more self-reliant in achieving healthy living goals.

Research by Fleischer et al. (2021) supports the effectiveness of audiovisual media in delivering ROM education, as it enhances understanding and engagement among the families of stroke patients. Videos demonstrating proper ROM techniques provide visual clarity and motivation for families to support consistent home-based exercises.

Based on the statistical analysis using the Wilcoxon test before and after the audiovisual-based educational intervention, the significance level was found to be $p = 0.001$ (where $p < \alpha = 0.05$), indicating a significant effect of ROM education using audiovisual media on the knowledge improvement of stroke patients' families in the working area of Kuin Raya Health Center, Banjarmasin.

According to Wahyuni, Putri, and Diniyah (2025), the success of health education is influenced by several factors, including the method of media used. Audiovisual methods are effective across all educational levels—from low to high. This is further supported by Hidayat et al. (2022), who stated that the question-and-answer method allows individuals to process and respond to information through discussion, thereby strengthening comprehension and memory

retention.

Fajriani and Yulastini (2021) also found a significant increase in knowledge following health education, as demonstrated by a notable difference in knowledge levels before and after the intervention.

As cited in Fajriani & Yulastini (2021), Notoatmodjo explains that knowledge is the result of human experiences or interpretation of objects through the senses, particularly hearing and sight. The level of attention and perception significantly influences this process, with ears and eyes serving as key channels for acquiring most information.

According to the researchers' assumptions, the increase in knowledge was facilitated by the use of audiovisual media, which enhanced respondents' comprehension, along with the question-and-answer method that reinforced understanding and retention. The improvement in ROM knowledge was also attributed to the provision of clear, structured information, delivered gradually and supported by opportunities for visual and auditory learning. Additionally, the timely and well-organized delivery of information enabled respondents to better understand and retain the educational content.

It can be concluded that one of the key factors contributing to the improved knowledge about ROM was the fulfillment of respondents' information needs in a detailed, structured, and progressive manner, with direct involvement in the learning process. Based on the analysis, the researchers concluded that *ROM education using audiovisual media significantly influenced the knowledge and attitudes of families of stroke patients in the working area of Kuin Raya Community Health Center, Banjarmasin.*

Furthermore, the study findings revealed that the proportion of respondents with a very supportive attitude increased from 6% (2 respondents) to 83% (29 respondents). Meanwhile, those with a supportive attitude decreased from 74% (26 respondents) to 17% (6 respondents), indicating a positive shift in attitudes.

According to WHO, as cited in Ramadini and Nidia (2024), health education is a combination of learning experiences designed to encourage motivation, increase knowledge, and raise awareness about health. It helps individuals take planned health actions, such as participating in immunization programs, health screenings, treatments, or behavioral changes that support health. Health education also includes communication skills aimed at empowering individuals and groups to promote health.

Audiovisual media deliver both visual and auditory stimuli simultaneously, facilitating more efficient information processing by the brain (Mayer, 2024). In the context of stroke patient families, a strong understanding of ROM is crucial for preventing complications such as joint stiffness and contractures. The significant change in attitude may also be explained by behavior change theories such as the Health Belief Model (HBM), in which increased knowledge contributes to shifts in perception and belief about the benefits of preventive action.

The statistical analysis using the Wilcoxon test, conducted before and after the education intervention, revealed a significance level of $p = 0.001$ (where $p < \alpha = 0.05$), confirming that ROM education has a positive effect on the attitudes of stroke patients' families in the working area of Kuin Raya Health Center, Banjarmasin.

Research by Marwanti et al. (2021) also showed a marked increase in positive attitudes among respondents following ROM education, shifting from largely unsupportive to very supportive attitudes.

According to Sarwono, as cited in Azhar, Sawitri, and Rahayu (2023), attitude refers to an individual's expression of liking, disliking, or neutrality toward an object. Differences in knowledge, understanding, and personal experiences can lead to variations in individual attitudes.

The increase in respondents' attitudes toward ROM was driven by clear, step-by-step information delivery and high levels of care and concern for their family members with stroke. Consequently, this positive attitude can be reflected in their daily caregiving practices.

In the researchers' view, the shift toward a more positive attitude following health education was caused by an increase in knowledge. This knowledge boost contributed to attitude change and was further reinforced by a supportive environment that enhanced understanding of ROM's importance for stroke patient care.

In conclusion, one of the key factors in the development of positive attitudes toward ROM was the fulfillment of respondents' informational needs in a clear, structured, progressive, and engaging manner, along with their strong concern for family members with stroke. Based on the findings, the researchers conclude that *ROM education using audiovisual media significantly influenced the knowledge and attitudes of families of stroke patients in the working area of Kuin Raya Community Health Center, Banjarmasin.*

Conclusion

There is a significant effect of Range of Motion (ROM) education using audiovisual media on the knowledge and attitudes of families of stroke patients in the working area of the Kuin Raya Community Health Center, Banjarmasin. The recommendations derived from this study involve four key stakeholders who play an essential role in the continuity of education and care for stroke patients. First, families of stroke patients are encouraged to be more proactive in participating in ROM education sessions to optimally support the patient's recovery process at home. Second, healthcare providers are advised to incorporate audiovisual media into health promotion efforts, as this method has proven effective in enhancing public understanding—particularly when conveying technical content such as ROM exercises.

Third, healthcare institutions are expected to routinely provide audiovisual tools as part of family education programs, ensuring that the information is easily and consistently accessible. Finally, for future researchers, the findings of this study may serve as a useful reference in developing further research, particularly those focusing on evaluating knowledge levels through to critical thinking skills, as well as assessing attitudes more comprehensively.

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