Vol. 1 No.1 (Year) Page. 393-399

HealthCare Nursing Journal
available on : https://journal.umtas.ac.id/index.php/healtcare
e-ISSN : 2655-6812

Research Article

The Influence of Health Education with Video Media on ROM Regarding the Level of Knowledge in Families of Stroke Patients

Nur Laila Fauziyah [1*], Ahmad Purnama Hoedaya [2], Ria Inriyana [2]
[1] Undergraduate Nursing Student, Indonesian Education University
[2] Lecturers at the Indonesian University of Education

Article Information

Received: 27 May 2025
Revised: 22 June 2025
Accepted: 20 July 2025
Available online: 31 July 2025

Keywords

ROM, Stroke, Muscle Strength

Correspondence

Phone: (+62) 821-2643-7173

E-mail:
nurlailafauziyah4@gmail.com

Website
https://journal.umtas.ac.id/index.php/healthcare/index

Doi
https://doi.org/10.35568/healthcare.v7i2.6663

ABSTRACT

The Ministry of Health of the Republic of Indonesia reported that in, individuals aged 75 years and older represented the largest age group affected by stroke, followed by those aged 65-74 years. However, individuals under 45 years old are still at risk for non-hemorrhagic strokes. In West Java Province, with a population of 131,846, the stroke incidence rate is 11.4%. According to the Ministry of Health, Sumedang District reported 12,584 stroke cases, particularly in the Puskesmas (Community Health Centers) of Tanjungsari, Cimanggung, and Buahdua, which had the highest number of stroke patients. Functional hand exercises using Range of Motion (ROM), which involve various joint movements to enhance muscle strength and flexibility, are crucial for stroke patients experiencing reduced joint mobility. This study uses a quantitative non-parametric approach with an observational research design. The study population consisted of 20 elderly individuals over 60 years old, all of whom were included in the sample. Data was collected through an observation sheet specifically designed to assess ROM. Statistical analysis was performed using univariate and bivariate tests, along with the Wilcoxon Signed Rank Test. The results showed a significant increase in knowledge after the intervention. In the video media group, the average knowledge score increased from 37.51 to 57.21 ($p < 0.001$). In the leaflet media group, the average score increased from 30.56 to 45.10 ($p < 0.001$). Video media proved to be more effective than leaflets, with a greater increase in knowledge and a more uniform distribution of scores. Both media positively influenced the knowledge of stroke patients' families regarding ROM, but video media had a greater statistical and practical impact.

INTRODUCTION

Stroke is a non-communicable disease (NCD) that ranks third as the leading cause of death worldwide after cancer and heart disease (Astutik, 2017; WHO, 2019). Stroke occurs due to impaired blood flow to the brain, which can lead to tissue damage and loss of motor function, especially in the extremities. In Indonesia, stroke cases continue to increase; in 2023, 12,584 cases were recorded in Sumedang Regency, with a high prevalence in the Cimanggung and Buahdua Community Health Centers (Ministry of Health, 2023).

One effective rehabilitation method is *Range of Motion* (ROM) exercises, which are non-pharmacological interventions without serious side effects (Rahmawati & Rahman, 2023). ROM helps increase muscle strength, prevent atrophy and contractures, and support the recovery of physical function in stroke patients (Suzanne et al., 2019; Rahayu, 2020). These exercises can be performed actively or passively and have been shown to increase muscle strength after regular implementation (Kusuma & Sara, 2020).

The role of the family is vital in supporting stroke patients' home care, especially since many patients experience long-term mobility impairments (Kaur & Sharma, 2021; Theresa et al., 2022). Family knowledge and skills in performing ROM exercises are key to successful rehabilitation (Smith et al., 2020). Health education has proven effective in improving family understanding and skills, especially when using engaging methods such as audiovisual media (Bakri et al., 2020; Marwanti et al., 2021).

This approach aligns with *Callista Roy's Adaptation Theory* , which emphasizes the importance of adaptive family support in coping with physical changes caused by illness (Roy, 1991 in Tomey & Alligood, 2008). With appropriate health education, families can actively contribute to the healing and recovery process of stroke patients (Smeltzer & Bare, 2020; Potter & Perry, 2017).

A preliminary study in Buahdua Village found that most families of stroke patients lacked adequate knowledge of ROM exercises. Therefore, this study will be conducted in the Cimalaka Community Health Center (Puskesmas) in 2025 to analyze the improvement in families' understanding and skills in implementing ROM after health education.

METHOD

This study used a quantitative method with a comparative experimental approach, aiming to compare the level of knowledge of families of stroke patients regarding *Range of Motion* (ROM) exercises before and after receiving health education through videos and leaflets. This study consisted of two independent variables for health education through videos (X_1) and leaflets (X_2) and the dependent variable the level of knowledge of families of stroke patients (Y). The population in this study was the families of individuals diagnosed with stroke, domiciled in Cimalaka, totaling 101 people with a sample of 78 respondents consisting of two groups (video and leaflet, 39 respondents each). The research was conducted in the Cimalaka Community Health Center working area for 2 weeks in April 2025. Bivariate Analysis This study used the non-parametric Wilcoxon statistical test, which aims to test the difference between two groups of paired data with a categorical measurement scale. This test was applied with a significance level of 5% ($\alpha = 0.05$) or a confidence level of 95%.

RESULTS

Table 1. Demographic Characteristics Based on Age and Education

Characteristics	*f*	%
Age		
< 40 Years	23	29.5
40–50 Years	55	70.5
Total	78	100
Education		
Elementary School	26	33.3
JUNIOR HIGH SCHOOL	26	33.3
High School/Vocational School	26	33.3
Total	78	100

source: primary data, 2025

Table 1 shows that the majority of respondents are in the 40–50 age range, representing 55 respondents (70.5%), indicating that most are in their productive and mature age, generally possessing greater work experience or social responsibilities. Meanwhile, 23 respondents (29.5%) are under 40, reflecting a relatively younger age group likely in the early stages of their careers or family responsibilities. There were no respondents under 20, and the over-50 age group was so small (around 7%) that it was combined with the 40–50 age group for analytical efficiency.

Respondents' education levels were evenly distributed, with 26 respondents (33.3%) having elementary, middle, and high school/vocational school education. There were no respondents with higher education (bachelor's degree or higher), indicating that respondents tended to have primary to secondary education backgrounds. This balanced distribution also indicates the absence of dominance of one particular educational level within the respondent population.

Table 2. Knowledge of Stroke Patients' Families After Health Education Using Video and Leaflet Media About ROM

	Video Media		Leaflet Media	
Category	***F***	%	***f***	%
Pretest				
Good	9	23.1%		
Enough	1	2.6%		
Not enough	29	74.4%	39	100%
Posttest				
Good	38	97.4%		
Enough	1	2.6%	38	97.4%
Not enough	0	0.0	1	2.6%

source: primary data, 2025

Based on table 2. above, it shows that the pretest results in the group using video media showed that most participants were in the Less category (score range 30-40) . After receiving treatment in the form of educational video media, the posttest results showed a significant increase with most participants being in the Good category (score range 51-60) . This shows that video media is very effective in improving participant understanding.
participant.

Furthermore, it can be seen that the group using leaflets was in the "Poor" category during the pretest. However, after being given the leaflet intervention, there was a significant improvement, with most participants reaching the "Sufficient" category (score range 41-50) . Although the improvement was not as significant as the video group, the leaflets still showed a positive effect on participants' understanding.

Table 3. Descriptives of the Influence of Health Education Using Video Media About ROM on the Level of Knowledge in Families of Stroke Patients

Descriptives	N	Mean	Elementary School	SE
Video Media Pretest	39	37.51	11,334	1,815
Video Media Posttest	39	57.21	2,904	0.465
Leaflet Media Pretest	39	30.56	1,095	0.175
Posttest Media Leaflet	39	45.10	1,535	0.246

source: primary data, 2025

Based on Table 3, it is known that the pretest results of the knowledge of families of stroke sufferers before being given health education through video media had an average value (mean) of 37.51 with a standard deviation (SD) of 11.334 and a standard error (SE) of 1.815. After the intervention was carried out through video media, the posttest results showed a significant increase with an average value of 57.21, a standard deviation decreased to 2.904, and a standard error of 0.465. The increase in the average value and decrease in the standard deviation indicate that in addition to increasing knowledge, the variation in scores between participants also became smaller, which indicates that most respondents achieved a relatively uniform level of understanding after health education was delivered through video media.

Furthermore, the pretest results regarding the knowledge of stroke patients' families before receiving health education using leaflets had an average value (mean) of 30.56 with a very small standard deviation (SD), namely 1.095 and a standard error (SE) of 0.175. After the intervention with leaflets, the average value increased to 45.10 with a standard deviation of 1.535 and a standard error of 0.246. This increase in the average value indicates that the intervention provided through leaflets had a positive effect on increasing the level of knowledge of respondents. However, compared to video media, this increase was more moderate and still showed slight variations between participants, although in general the posttest results showed quite good consistency.

Table 4. The Effect of Health Education Using Video Media About ROM on the Level of Knowledge in Families of Stroke Patients

Paired Samples T-Test				
	Test	Statistics	df	*p*
Pretest-Posttest	Student	-11,143	38	< .001
	Wilcoxon	6,000		< .001

Based on Table 4, it can be seen that the results of the *Paired Test A Samples T-Test* in the group given health education using video media showed a *t- value* of -11.143 with $p < 0.001$. A negative *t- value* indicates that the average posttest score is higher than the pretest, meaning there was an increase in knowledge after the intervention. A p-value < 0.001 indicates that the difference is statistically significant, meaning there is a real difference between knowledge before and after the intervention.

Furthermore, *the Wilcoxon Signed Rank Test results* also showed consistent findings, with a *Z value* of 6.000 and $p < 0.001$, confirming a significant increase in knowledge after the intervention. These findings indicate that video media is highly effective in improving the knowledge of stroke survivors' families regarding ROM.

Table 5. The Effect of Health Education Using Leaflets About ROM on the Level of Knowledge of Families of Stroke Patients

Paired Samples T-Test				
	Test	Statistics	df	p
Pretest-Posttest	Student	-48,771	38	< .001
	Wilcoxon	0.000		< .001

Based on Table 5, it can be seen that the results of the *Paired Samples T-Test* in the group given health education using leaflets showed a *t value* = -48.771 with p < 0.001. A negative *t value* indicates that the average posttest score is higher than the pretest, which means there was an increase in knowledge after the intervention. A p value < 0.001 indicates that the difference that occurred was statistically significant, meaning there was a real difference between knowledge before and after the intervention.

Furthermore, *the Wilcoxon Signed Rank Test results* also showed similar findings, with a *Z value* of 0.000 and p < 0.001, confirming a significant increase in knowledge after the intervention. This indicates that leaflets are effective in increasing the knowledge of stroke patients' families regarding ROM.

DISCUSSION

The results of this study indicate that health education on *Range of Motion* (ROM) provided to families of stroke patients using two types of media, namely videos and leaflets, was effective in increasing respondents' knowledge. Both intervention methods showed a statistically significant increase in knowledge scores after the intervention was administered.

Video media had a very strong impact on improving participants' knowledge. This was demonstrated by a significant increase between pretest and posttest results, accompanied by a decrease in score variation, indicating a more even understanding among participants. Statistical analysis showed that video media was highly effective in conveying information through a combination of visuals and audio, making it easier to understand and remember.

Meanwhile, leaflets also proved effective in increasing knowledge, although the increase was not as significant as that seen with video. The difference in scores before and after the intervention indicated an increase in participant understanding. Despite the simpler and more passive nature of the leaflet approach, the analysis still showed a positive effect on increasing knowledge, thus accepting H0 and rejecting H1.

Overall, the results of this study align with previous research suggesting that media-based health education, both print and *audiovisual,* can improve public knowledge. However, its effectiveness can vary depending on the characteristics of the medium and the delivery method. Dynamic, visually engaging, and interactive video media is more effective at capturing attention and increasing understanding than static leaflets.

Thus, the use of appropriate educational media is crucial in health promotion programs. For families of stroke survivors, video media can be considered the primary educational method due to its greater effectiveness in increasing knowledge evenly and significantly.

The results of this study align with those of Muhsinin (2020), Desyani et al. (2018), Qaryati, Basit, and Lathifah (2021), and Ramayati (2020), all of which demonstrated that video or audiovisual media is effective in improving family knowledge, attitudes, and skills in caring for patients, particularly in stroke cases. Video media has been shown to be more effective in conveying information because it is more engaging and easier to understand than print media, significantly improving participant understanding.

Another researcher, Ixora et al. (2022), also emphasized that providing health education on ROM exercises using audiovisual media not only increases knowledge but also motivates families to perform these exercises for stroke patients. They concluded that the effectiveness of audiovisual media lies in its ability to combine visual, audio, and animation elements in an integrated manner, thus facilitating understanding and accelerating the information absorption process. This aligns with the principle that most information is processed through the senses of sight and hearing.

The implications of this study's results indicate that selecting appropriate educational media plays a crucial role in improving the knowledge of stroke patients' families about Range of Motion (ROM) exercises. Video media proved more effective than leaflets in conveying information because it combined visual and auditory elements, strengthening understanding and reducing knowledge gaps among participants. Meanwhile, leaflets still had a positive impact, albeit with lower effectiveness. Therefore, when planning health education programs, particularly for families of stroke patients, healthcare workers are advised to prioritize the use of video media as a more interactive and easily understood educational tool, without neglecting the role of print media as a complementary information source.

CONCLUSIONS AND RECOMMENDATIONS

The initial level of knowledge of families of stroke sufferers about ROM is still low, as seen from the dominance of the "Poor" category in the pretest results, both in the video and leaflet media groups. Health education using videos and leaflets significantly improved families' knowledge of ROM, as evidenced by significant increases in posttest scores in both groups.Video media proved more effective than leaflets. The group receiving video education experienced a higher average score increase and a decrease in score variation, indicating a more uniform understanding.

It is recommended to utilize video media in health education programs for families of stroke patients, especially for technical topics such as ROM exercises, because it has been proven to be more effective in increasing overall understanding. It is necessary to develop interactive and easily accessible educational video modules, so that they can be used sustainably in various health promotion programs.

REFERENCES

Bakri, A., Irwandy, R., & Linggi, P. (2020). Pendidikan kesehatan dalam meningkatkan pengetahuan keluarga pasien stroke.

Desyani, R., Sari, D. P., & Wulandari, S. (2018). Pengaruh media video terhadap peningkatan pengetahuan keluarga dalam perawatan pasien stroke. *Jurnal Keperawatan, 10*(2), 123–130.

Ixora, A., Putri, M. D., & Santoso, H. (2022). Efektivitas media audiovisual dalam pendidikan latihan ROM pada pasien stroke. *Jurnal Pendidikan Kesehatan, 15*(1), 45–53.

Kaur, S., & Sharma, R. (2021). Peran keluarga dalam rehabilitasi pasien stroke: Tinjauan literatur.

Kementerian Kesehatan Republik Indonesia. (2023). *Data kasus stroke di Kabupaten Sumedang tahun 2023*. Kemenkes RI.

Kusuma, R., & Widyawati, N. (2020). Latihan Resisted Range of Motion (RROM) untuk pemulihan pasien stroke.

Marwanti, L., et al. (2021). Pengaruh edukasi dengan media audiovisual terhadap keterampilan Range of Motion Muhsinin, M. (2020). The role of audiovisual media in improving

family skills in caring for stroke patients. *Scientific Journal of Health, 12* (3), 210–218. (ROM) keluarga pasien stroke di RSI Klaten.

Muhsinin, M. (2020). Peran media audiovisual dalam meningkatkan keterampilan keluarga merawat pasien stroke. *Jurnal Ilmiah Kesehatan, 12*(3), 210–218.

Potter, P. A., & Perry, A. G. (2017). *Fundamentals of nursing: Concepts, process, and practice*.

Qaryati, N., Basit, A., & Lathifah, N. (2021). Media video sebagai sarana edukasi keluarga pasien stroke: Studi kuantitatif. *Jurnal Kesehatan Masyarakat, 17*(4), 300–308.

Rahmawati, A., & Rahman, M. A. (2023). Pengobatan stroke dengan latihan Range of Motion (ROM): Pendekatan non-farmakologis yang aman.

Ramayati, R. (2020). Pengaruh penggunaan media video terhadap sikap keluarga dalam perawatan pasien stroke. *Jurnal Keperawatan Indonesia, 9*(1), 75–82.

Roy, C. (2009). *The Roy Adaptation Model: The definitive statement*. Pearson.

Smeltzer, S. C., & Bare, B. G. (2020). *Brunner & Suddarth's textbook of medical-surgical nursing* (14th ed.).

Smith, J., et al. (2020). Barriers to effective stroke rehabilitation: The role of family knowledge and engagement.

Sugiyono. (2019). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Suzanne, L., Miller, J., & Carter, B. (2019). Manajemen rehabilitasi stroke: Peran latihan Range of Motion (ROM).

Theresa, M., Johnson, R., & Carter, B. (2022). Manajemen rehabilitasi pasca-stroke: Tantangan dan strategi pemulihan.

World Health Organization. (2019). *Global stroke fact sheet 2019*. World Health Organization.